

Municipal Journal

Volume XXXVIII

NEW YORK, JUNE 17, 1915

No. 24

ALBANY'S SEWAGE TREATMENT PLANT

Sixteen Imhoff Tanks and Eight Sludge Beds—Tank Effluent Runs Directly Into River—Details of Plans —Difficulties of Deep Excavation for Tanks—Constructing Intercepting Sewer

As long ago as 1891, the construction of a system of intercepting sewers together with works for purifying its sewage was contemplated by Albany, N. Y., and in that year plans were made; but nothing more was done at the time. Between 1891 and 1911, the question of sewage treatment often came up and there was some agitation for a system of disposal to end the riverfront pollution, but nothing was done.

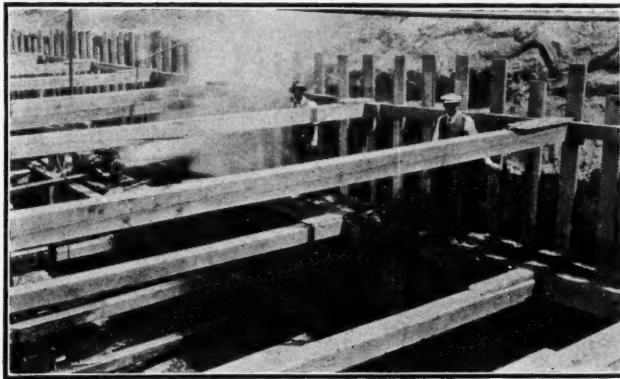
In 1911, the common council passed an ordinance providing for the construction of an intercepting sewer and Hering and Gregory of New York were employed as engineers. Plans for the disposal plant were submitted by them in 1912 and accepted and approved. (An abstract of their report was published in Municipal Journal for August 15, 1912.) On January 1, 1913, S. B. Vernon was employed as engineer of design and construction for the sewer, the plans for which were com-

The entire cost of the disposal system was estimated as follows:

Intercepting sewer	\$375,000
Disposal plant	300,000
Pumping station, etc.....	300,000
Land, rights of way, etc.....	70,000
Engineering and incidentals.....	55,000
	<hr/>
	\$1,100,000

Plans for the intercepting sewer included as alternatives monolithic concrete and reinforced concrete pipe. The latter was chosen in awarding the contract as being simpler of construction and offering less obstruction to traffic during building owing to storing material in the streets. It was also considered fully as economical and desirable in other ways. The contract for making the pipe was let to the Lock-Joint Pipe Co., of New York.

The intercepting sewer, beginning in the northeast



EXCAVATING FOR ONE OF THE TANKS.

pleted that year under the direction of the commissioner of public works, Wallace Greenalch, and city engineer Frank R. Lanagan. But as they had to be approved by the State Health Department and the Conservation Commission, this and securing rights of way delayed the beginning of the work until 1914.

Early in 1914, the contract for the construction of the sewer was let to Henry C. Ulen of Chicago for \$356,056.50 and shortly afterward the disposal plant contract was let to the Riverdale Contracting Co. of New York for \$232,362.50. Four of the 16 settling tanks and two of the 8 sludge drying beds included in the plans were temporarily omitted from this contract, but these have since been contracted for by the same company at the same unit prices.



STEAM HAMMERS DRIVING SHEETING.

section of the city, runs in a general southerly direction, paralleling the river, and collects sewage coming down in the old sewers from the high sections of the city. At its upper end it is necessary to build a small pumping station to raise the sewage from low land in the northern section to the level of the interceptor. Near the southern limits of the city the new sewer crosses Island Creek to Westerlo Island, where the disposal plant is now being constructed.

At the upper end the sewer has a diameter of 24 inches and the depth of excavation is about 10 feet. As it nears the disposal plant, the size increases to 27, 36, 42, 48, 54 and finally to 66 inches and the depth of excavation to 35 feet. On Westerlo Island, near the disposal plant, the depth of excavation is about 23 feet.

The maximum capacity of the interceptor is about 106 cubic feet per second and the calculated velocity varies from $3\frac{1}{2}$ feet per second near the upper end to $6\frac{1}{2}$ feet per second at the lower end. In its entire length of approximately three miles, the fall is a little over 25 feet and the invert at the site of the proposed pumping station on Westerlo Island is 8 feet below mean low water in the Hudson river.

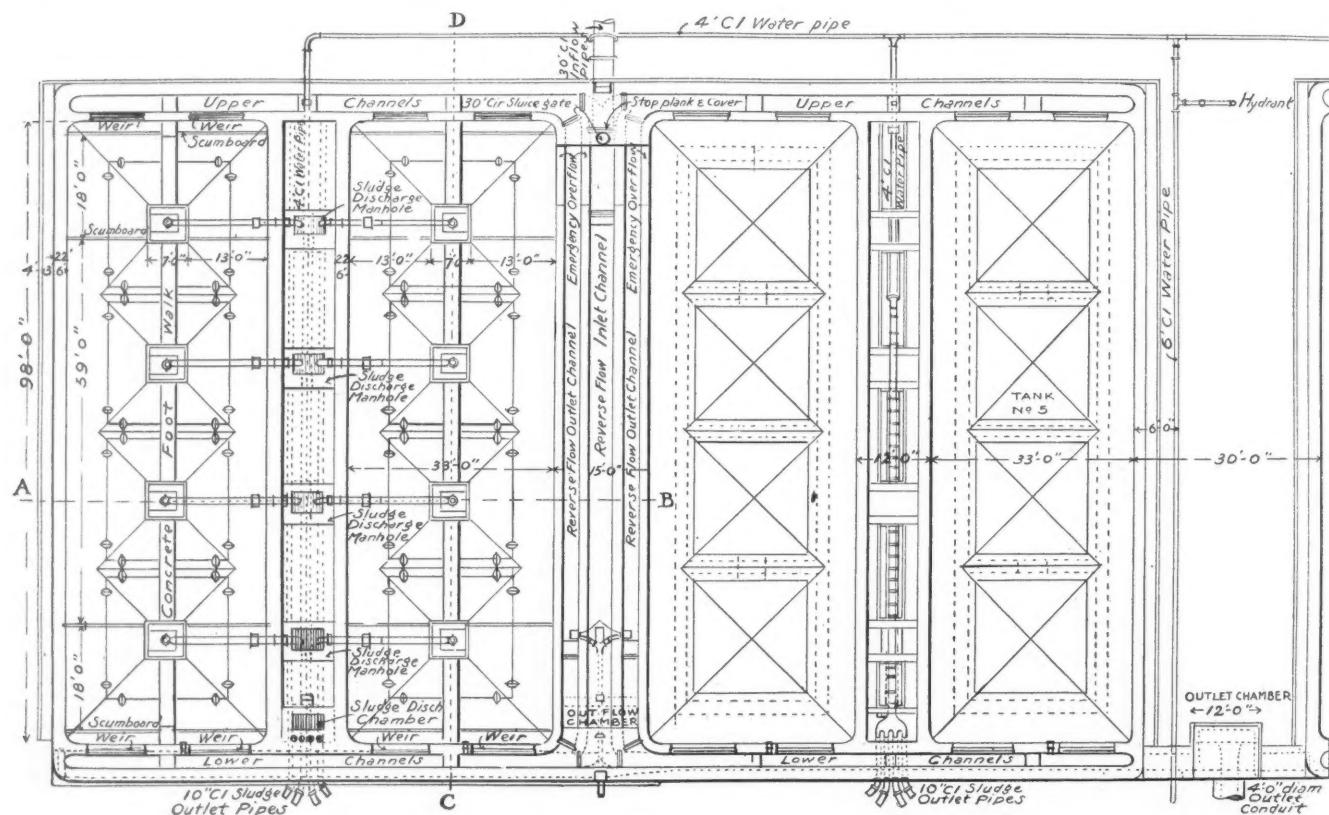
At each intersection of lateral and interceptor is a regulator in the form of a float-operated shear valve adjusted to limit the flow from the tributary into the lateral sewer to a predetermined quantity, any surplus storm water flowing in the present system to the river.

The actual work of constructing the intercepting sewer was begun in July, 1914, with the construction of the Island Creek crossing. A timber trestle on temporary piles was first constructed and corrugated steel sheet piling was driven on each side by steam hammers, forming a coffer dam about 13 feet wide. The piling was

of soft clay and muck and the excavation is, in some places, 35 feet in depth, construction has been difficult. Tight and careful sheeting was necessary and much of this had to be left in place. There was some settlement of streets and, in a lesser degree, of buildings. A tunnel about 100 feet long had to be driven under the railroad tracks near the creek crossing, but the stiff blue clay, almost impervious to water, which was encountered, made the construction easy, though timbering was necessary. The excavation here was lined with monolithic concrete.

Since the invert of the sewer on Westerlo Island is 8 feet below mean low water and since it was deemed necessary, in order to insure the operation of the plant during times of high water, that the surface of the sewage in the tanks be 22 feet above mean low water, a pumping plant to raise the sewage about 30 feet will have to be constructed. Plans for this pumping station and for the grit chamber have not yet been completed.

The intercepting sewer will carry the dry weather flow



PLAN OF IMHOFF TANKS, SHOWING FOUR OF THE SIXTEEN TANKS.

driven to a depth three or four feet below the sewer bottom, but some trouble was encountered due to hydrostatic pressure forcing mud up into the trench. Right of way troubles also delayed the work and the crossing was not completed till late in the fall.

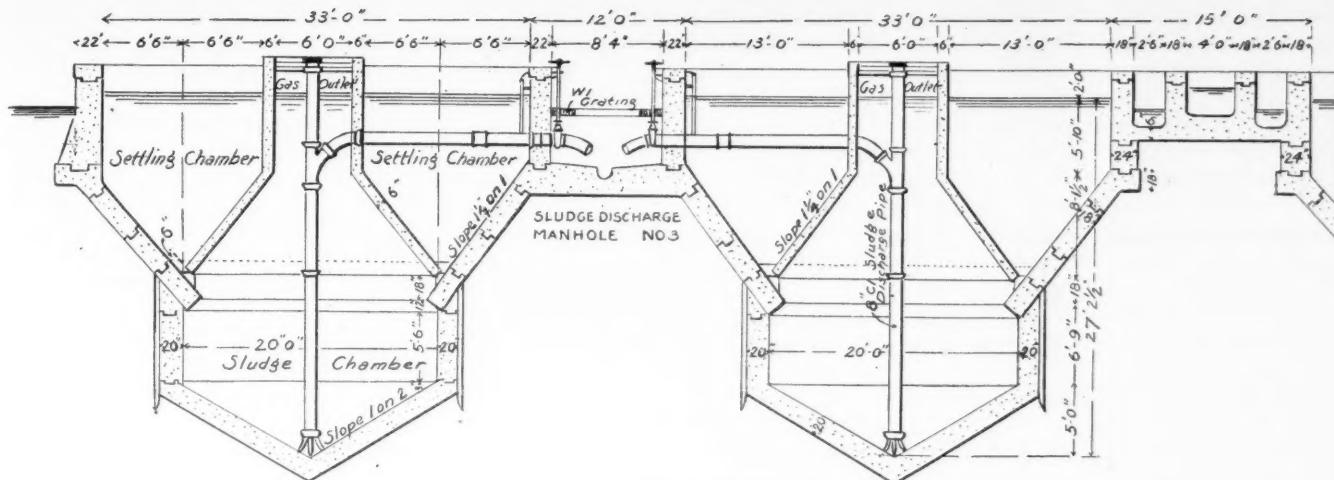
In sewer construction in the city where the depth of excavation exceeded about 15 feet, excavating machines made by the Moore Trenching Machine Co. of Syracuse, N. Y., and cableways were used. The former, of which there are three in use, consist of a steel rail track laid over the line of the sewer, with an engine at one end, a traveling carriage, buckets, etc. The carriage, which travels on the track and is operated by cable from the engine house, has a working platform about ten feet above the track. Steel buckets of one-yard capacity are lowered into the trench, filled by laborers working with pick and shovel, raised to the platform, removed to the completed sewer and dumped. The machine is also used to handle the pipe and lay it in place.

In the southern part of the city where the ground is

of sewage to the grit chamber, where the velocity will be reduced to about one foot per second, so that a large part of the mineral suspended matter will be deposited. Bar screens will remove the larger floating and suspended substances. From the grit chamber the sewage will be lifted by the pumps to the settling tanks.

These consist of 16 Imhoff tanks designed to handle an average flow of 30,000 gallons per day, the average time of retention being three hours. The tanks are arranged in batteries of four, each battery being fed by a 30-inch cast iron off-shoot from the force main.

The tanks are 33 feet wide, 98 feet long and $2\frac{1}{2}$ inches deep from the surface of the liquid to the floor of the sludge chamber. Each tank has one upper settling chamber and four lower sludge chambers. The sidewalls of the settling chambers are vertical for a depth of 5 ft. 10 in., and below this have a uniform slope of $1\frac{1}{4}$ on 1. The sides of the sludge chambers also are vertical and 5 ft. 6 in. high, forming pockets 20 ft. square, with hopper bottoms sloping 1 on 2. The four sludge chambers of



VERTICAL SECTION ON A-B.

each tank are connected in pairs by two semicircular openings at the bottom, each 2 ft. by 4 ft. These chambers are designed to retain the sludge for from three to six months.

Each of the four sludge chambers of each tank is continued upward through the settling chamber as a tapering chimney 6 ft. square on top, thus giving for each 33 by 98 ft. tank four gas outlets each 6 ft. square, or a total area equal to 4½ per cent of that of the settling chamber.

Each group of four tanks is further arranged in pairs, a sludge channel being located between the two tanks of each pair, and reverse-flow outlet and inlet channels between the two pairs. In each sludge channel are four manholes, one opposite each gas outlet chimney. An 8-inch cast iron sludge discharge pipe rises vertically from the center of each hopper bottom to the top of the chimney, with a horizontal branch 3 ft. 8 in. below the sewage surface carried across the settling chamber and discharging into the sludge manhole, where it is controlled by a gate valve. Passing through the middle of the sludge channel is the main sludge discharge pipe, 10 in. vitrified pipe in concrete, which receives the sludge at the manholes and carries it to a sludge discharge chamber, whence four 10 in. cast iron pipes distribute it to the sludge drying beds.

A 4 in. water pipe is connected with the upper end of each main sludge discharge pipe for the purpose of flushing it out. Two 1½ in. brass water pipes are carried down the side of each vertical sludge discharge pipe to the bottom of the sludge chamber, where four 1½-in. lead pipes branch off, one up each slope of the bottom and

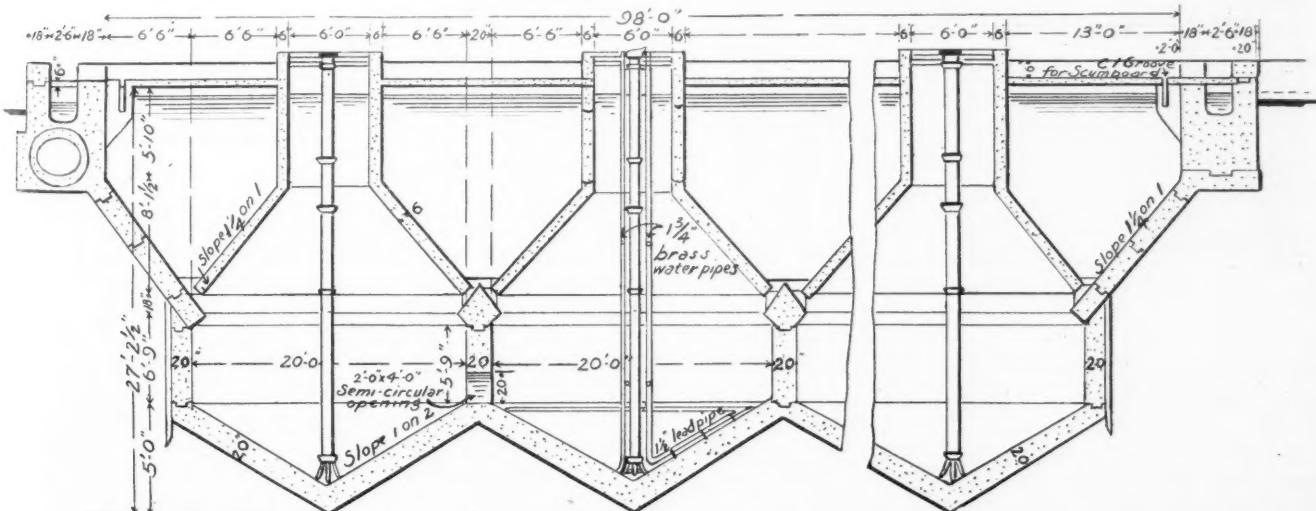
around the sides, these pipes having ½ in. holes at 18 in. intervals; the purpose of this being to wash the sludge to the foot of the sludge discharge pipe if necessary.

The sewage receives no other treatment than that from the tanks, the effluent being collected in outflow chambers and discharged through a 60-inch outfall conduit into the Hudson. The effluent from the sludge drying beds also is discharged through this conduit.

The sludge beds are eight in number, each 80 feet wide by 104 feet long. The beds are divided by 2-inch concrete partition walls 15 inches high in sections 20 feet by 104 feet. Tile underdrains, 3-inches in diameter, are laid with ½-inch open joints in lines spaced 13 feet center to center, at right angles to the partition walls. These drain into an 8-inch vitrified tile main drain laid with cement joints. This drain discharges into a manhole whence the effluent passes into the outfall conduit.

The beds, which are from 10 to 14 inches in depth, are filled with a ¼-inch layer of sand on 2 inches of 1/16-inch to ¼-inch gravel, under which is 4 inches of ¼-inch to ¾-inch gravel and 4 to 7 inches of 1-inch to 2½-inch gravel. Dried sludge will be removed by cars running over tracks of 24-inch gauge laid on the sludge beds and will be used to fill low places.

The 60-inch outfall conduit, which is about 1000 feet in length, is of concrete. Much of it is laid on a timber foundation, supported on piles and constructed within a timber coffer-dam of triple lap sheet piling left in place. The supporting piles were driven three in a row and the rows spaced five feet apart, the depth averaging 23 feet below the foundation timbers. The flow line is in general

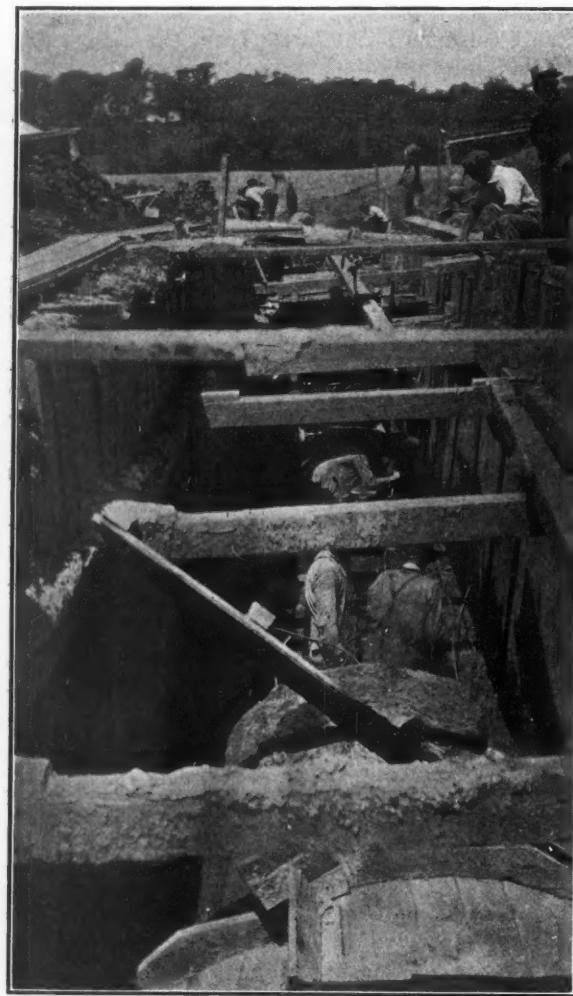


VERTICAL SECTION ON C-D.

one foot below mean low water in the river, but in the last twenty feet through the river dike the outfall drops abruptly to a flow line elevation 8 feet below mean low water.

The construction of the disposal plant includes about 50,000 yards of embankment. Part of this is used in the construction of a dike about 11 feet high around the entire plant to protect it from high water. Also, as the top of the settling tanks are to be at elevation 24.0, it was necessary to construct the greater part of them in fill. Practically all the embankment was completed last fall and allowed to settle during the winter, hollows being left where the settling tanks were to be constructed.

It was necessary to use coffer-dam construction in excavating for the tanks this spring. Three-inch yellow pine tongue and groove sheet piling was driven, the first few feet by hand and the rest by steam hammers, to a depth about three or four feet greater than the excavation. It has been found that the piling is not heavy enough, and this depth is not sufficient, as hydrostatic pressure is forcing mud and soft clay up into the excavation. The plans originally provided for 2½ by 5-inch reinforced concrete piling for this construction, but this was abandoned in favor of the yellow pine.



BUILDING THE OUTFALL SEWER.

The first six tanks are now nearly ready for concreting, and excavation will soon be started on the second block of six tanks. A 75-foot derrick handles and removes all material from two of the tanks, while an 80-foot derrick is able to reach four tanks. One-yard and 1½-yard buckets are lowered into the pits, filled by hand, raised and dumped, the material being used as cover for the out-

fall conduit. Ten men are usually assigned to each tank for excavation. Pumping is necessary, as considerable water has been encountered and there are three Pulso-meters and six Cameron pumps at work.

Two sets of forms are being constructed and the tanks will be concreted, two at a time. Owing to the small amount of concrete to be poured in any one spot, it is not likely that any large concrete tower will be erected, but the gasoline mixers, of which there are two on the job, will be moved from place to place as required. A cableway may be constructed which will be used first in excavating and later in handling concrete, forms, etc.

Work has not yet been started on the sludge drying beds but the grading for them is nearly finished, and as soon as the outfall sewer is completed, their construction will be begun.

Three hoists, one National, one Lidgerwood and one Mundy, are in use on the two derricks mentioned and a 60-ft. stiff leg derrick which is used for general purposes. Two steam hammers, a National and a Hamilton, have been used to drive piling. The equipment also includes one Shafer steam-operated concrete mixer and two Lansing gasoline mixers.

The contract involves about 50,000 yards of embankment, 25,000 yards of excavation, 15,700 yards of concreting, 6,480 feet of vitrified sewer, 205 tons cast iron pipe, 7,000 feet of piling and 560,000 pounds of steel reinforcement. The works is being done by The Riverdale Contracting Company of New York, James P. McAtee, general manager, and A. G. Strathie, superintendent.

PHILADELPHIA SEWAGE TREATMENT REPORT

Interesting Discussions of Sewerage Principles and Practices in Report on Treating Philadelphia's Sewage—Combined System—Interceptors

Studies of the problem of treating the sewage of Philadelphia and the making of plans therefor are described at some length in the report just issued by the Department of Public Works of that city, signed by George S. Webster, chief engineer, George E. Datesman, principal assistant engineer, and W. L. Stevenson, assistant engineer. Quite a little of the report is of local interest only and more is a rather popular review of history and facts concerning sewage treatment which are familiar to sanitary engineers; which is quite appropriate and proper in a report whose chief purpose is presumably the informing and educating of the officials and citizens generally of Philadelphia. Several conclusions and principles of design, however, are of general interest, and some of the discussions of these are abstracted below.

In considering whether to adopt the separate system of sewerage for the city, the following conclusions were reached:

Separate sewers would furnish a flow more uniform in rate and less in amount than combined sewers; would exclude all house sewage from the water courses, even in times of storm, and would lessen the load upon treatment works and prevent possible detriment to their operation due to grit or changing sewage characteristics. On the other hand, with the combined sewers, the lifts and consequent pumping costs would be less;* the first flush of rainfall, which contains the deposits on the sides of sewers and filth from the street surface, is intercepted and conveyed to the treatment works, thus excluding from streams more polluting matter than would be contributed by the overflow thereinto of the diluted sewage; the

*See editorial.

greater fluctuation of flow to the works would be compensated for by decrease in concentration of sewage and possibility of passing it through the works at greater speed; the cost of facilities at the works for removing grit brought by the surface water is slight; and less space in the street would be occupied by one set of conduits and house connections than by two. In addition, the fact that the combined sewers are already in and buildings connected with them means the saving to the city of the cost of constructing 1,300 miles of house sewers with the consequent tearing up of streets and pavements, and an additional sum of \$25,000,000 which it would cost the property owners to rearrange their plumbing systems and provide double connections. It would be impracticable to insure that all houses would make the two connections, and hence that no house sewage would reach the storm sewers and the streams. Finally, the protection of the water courses can be accomplished in much shorter time, since years must be consumed in building a new system of house sewers throughout the city. There are, however, certain conditions where separate sewers will be used, in low lying areas or where water supplies are to be protected.

The plan adopted is in general that ordinarily employed under similar conditions—carrying intercepting sewers parallel with the streams to collect the dry-weather flow of the combined sewers; constructing also another system of interceptors which will flow to the treatment plant by gravity, in those districts where the sections of the storm sewers near their outlets are so low that sewage collected from such sections could not reach the plant except by pumping. In details of this system, however, Mr. Datesman "is prepared to recede from a position which, following American practice, provides that interceptors be built along the rivers, passing underneath the existing sewers, whose invert are at the level of low water at the rivers. This plan is extremely costly on account of the sewers being so far under the water level, with consequent difficulty as to foundation. Another great expense by following the present plan is the construction of tide gates and chambers, under disadvantages due to tidal influences, at practically every existing outfall.

"He is convinced that over a large part of the territory the interceptors can be raised many feet and be so built across the section of the existing sewers as to permit of the extrados of the interceptors forming dams, excluding the tide and saving the cost of tide gate chambers, and also constitute overflows for storm flow, the dry weather flow being connected by proper sized and adjustable channels to the interceptors." The dam would be "located at a point in the tributary sewer where the crest of said dam shall not be higher than two-thirds the vertical diameter of the tributary sewer.

"The declining grade of the collector will carry it at an increasingly lower elevation across the succeeding intercepted tributary sewers, thus admitting of the lowering of the dams progressively until the collector will be completely beneath the invert of the remaining tributary sewers.

"The restricted water area in the tributary sewer at a dam would be compensated for by enlarging the section of the sewer at this point sufficiently to accommodate the excess storm flow beyond that which would be taken into the collector and allow the passage of this excess quantity over the dam and into the river.

"The principle involves the placing of a separate sewer system over low-lying areas subject to tidal inflow between the dam and the river bank. The principle is adopted for the reason that by the raising of the collecting sewers, in ground which is water bearing, from 5 to

8 feet and in some instances 10 feet above the profile which must be followed in case the usual American practice is adopted, reduces the first cost of such construction by a considerable amount. If placed several blocks back from the river, it will become shallower on account of the ascending grade of the main sewers and will admit of the house drainage from the river front being carried backward into the main interceptors, and reduces to a minimum the area that would be required to be sewered upon the separate or double system.

"The application of this principle will proportionately lessen the lift required of pumps and consequent permanent maintenance cost and will raise the head on any siphon which may be put into the line.

"The most appreciable advantage in the adoption of this principle in the design of collecting sewers is the ability to operate the system without the construction of expensive tidegates, the satisfactory operation of which would be doubtful and the use of which might possibly cause a surcharge of the works or render them ineffective in their operation.

"The diverting dams also permit the use of a gate regulator without moving parts of complex mechanical arrangement and thus avoid structures liable to break down or requiring constant and expensive maintenance. A steel gate hung upon a trunnion eccentrically as to the axis has been designed to be introduced in the connecting channel between the main and collecting sewers, depending only upon the rise of the water in the main sewer to exclude the excess during storms, shutting positively by impact and opening by the eccentric weight of the gate itself when the water subsides.

"In the opened condition the gate allows only the first flush of the rain to pass to the works in addition to the dry weather flow and in the closed condition it allows no more to pass through the restricted area under the increased head of water in the main sewer."

During the study of the problem, gaugings were taken of several main sewers. This of necessity included ground water, of which there is probably considerable entering the older sewers, many of which were constructed without mortar in the invert joints. These gaugings indicated that the maximum flow was 128 per cent of the average and the minimum 78 per cent (as the water consumption averages 180 gallons, fully two-thirds of it is probably waste, most of which is running night and day; which, combined with the seepage, would account for the low maximum and high minimum as compared to the average).

It was decided to take into the interceptors rain water sufficient to make the total flow 10 per cent greater than maximum dry-weather flow, giving a total maximum of 141 per cent of the average dry-weather flow.

In designing the collectors, grades and cross sections were used which would give a velocity of sewage of not less than $2\frac{1}{2}$ feet per second when the estimated daily average amount was flowing. In estimating the quantity to be carried by each collector, and also by each new sewer which was to be designed, the familiar method was employed of dividing the city's area into population units (wards and census enumeration districts) and drainage areas, from these calculating the future population on each drainage area, and (using the estimated per capita flow) the amount of sewage to be carried by the sewers draining such district. The year 1950 was used in estimating population, and 180 gallons per day as the average dry weather flow. In estimating the population in 1950, census returns by wards from 1860 to 1910 were plotted, curves plotted for each ward and projected forward to 1950. "The projected curves were then adjusted so that the summation of the 1950 population equaled

the estimated population of the entire city," 3,090,000. The oldest 16 wards were assumed to have no increase in population between 1910 and 1950. The methods proposed for treating the sewage in each of the three districts into which the city was divided were described generally in our issue of May 20th. Little further detail is given in the report except as to the systems for collecting the sewage and conducting it to the sites selected.

FITCHBURG SEWAGE DISPOSAL PLANT.

In our issue of September 17th, 1914, we described the sewage disposal plant of the city of Fitchburg, Mass., then nearing completion. Since that time the plant has been finished and put into operation and a few additional figures are available. Among these is the total cost of the plant, which, exclusive of engineering and inspection, which would probably total about \$30,000, was \$308,825. As stated in the article, the plant consists essentially of five rectangular Imhoff tanks each 30 x 90 x 24 feet deep, two acres of sprinkling filters with stone 10 feet deep, four-tenths acre of sludge drying bed and four circular secondary settling tanks each 30 feet in diameter and 22½ feet deep; also a pumping station, laboratory building, roadways, etc. The contract called for the completion of the work by the end of October, with the offer of a bonus of \$5,000 if completed ahead of that time. The contractor finished all of the work several weeks before the end of October and was paid the bonus.

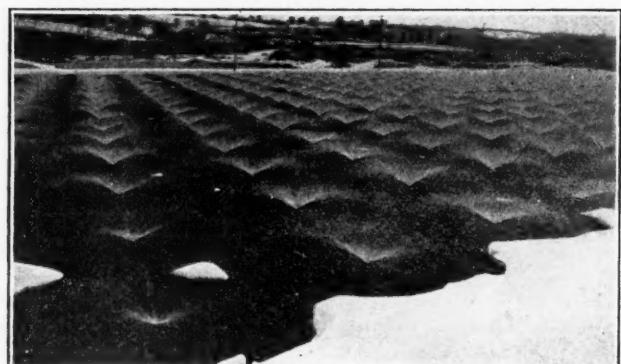
Land to the extent of 116.67 acres was purchased for the plant at a cost of \$25,007.97. The Imhoff tanks cost \$56,122.53; sprinkling filters, \$136,545.53; secondary tanks, \$8,969.62; dosing tank and apparatus, \$10,661.52; Venturi meter and chamber, \$2,942.25; sludge beds, \$3,054.81; pump house and pump, \$2,007.64; overflow chamber, \$901.93; effluent channel, \$1,328.91; pipe lines, \$9,668.27; roadways, \$10,710.57; river improvement, \$5,122.67; laboratory building complete, \$15,213.86; miscellaneous work, \$15,567.37; bonus paid contractor, \$5,000; total, \$308,824.85. In the above, the item "pipe lines" covers all lines for conducting the sewage from one portion of the plant to another and which are not built into and do not form a part of the different features, and also about one-half mile of 6-inch water pipe and six hydrants. The cost of the sprinkling filter includes 36-inch and 30-inch header lines and distribution pipes. The dosing tank cost includes the siphon apparatus, costing \$3,066.87. Tracks and cars for removing sludge are not included in the cost of sludge beds, but must be added to complete this feature.



FITCHBURG SPRINKLING FILTER, DEC. 28, 1914, AFTER TWO CONSECUTIVE MORNINGS WITH TEMPERATURE AT 8° BELOW ZERO.

The disposal works were put into continuous operation on October 15th, 1914, and analyses of weekly composites of proportionate daily samples, taken hourly, have been made regularly to maintain a record of the character of

the sewage received and to determine the efficiency of the various stages of treatment. Three men, one for each eight-hour shift, were used at the beginning for the out-



SPRINKLING FILTER ON FEB. 9, 1915.

side work, but it was anticipated that this force would need to be increased later on. Up to December 4th the average daily flow was a little less than 1,750,000 gallons, and as three Imhoff tanks were in use, this gave an average detention period of eight and a half hours. After December 4th the two remaining tanks were put into operation, thus increasing the detention period to 10.2 hours. The average rate of the sprinkling filters was about 876,000 gallons per acre per day. The nitrates in the final effluent for the week ending October 22 (the first week of continuous operation) were 0.7120 parts per million, but by the end of the year had increased to 4.9663 parts.

SEWAGE DISPOSAL IN MARYLAND

Advantages of Joint Sewerage and Sewage Treatment Systems for Small Towns Adjacent to Washington —State Health Law Constitutional

The District of Columbia has for several years been calling attention to the pollution of streams entering and passing along the borders of the district which is caused by communities of Maryland lying near the district boundary line. Largely because of this, the Governor of Maryland in 1912 appointed a sewerage commission of Montgomery and Prince George's counties, instructing them to investigate this matter and report to the Maryland legislature of 1914 recommendations concerning the collection and disposal of sewage in the sections adjacent to the District of Columbia. The actual investigation was carried on by the Maryland State Department of Health, which offered its services, and early in 1914 the health department reported to the sewerage commission. The commission then prepared and introduced in the legislature a bill providing for the formation of a sanitary district which would include the area in the two counties named, which district would be put under the jurisdiction of a commission of five members, two from each county, the fifth being the chief engineer of the State Department of Health. This bill failed to pass the legislature, but instead, two acts were passed by it under which the county commissioners of Montgomery and those of Prince George's counties were constituted separate sewerage and drainage boards for the purpose of providing the necessary sewerage facilities. Up to date little or nothing has been done by these boards looking to a relieving of the pollution of the streams complained of. The State Department of Health, however, acting under a general law recently passed, has ordered the construction of sewerage systems in certain of the areas involved, the construction of

which will remedy some of the worse conditions of stream pollution.

The necessity for action by the State or by some other body directly interested in the matter and possessing both authority and expert information would seem to be pressing, not only to secure the construction of additional sewers and disposal plants, but because of the apparent ignorance or indifference of local authorities in their operation of sewage treatment plants already constructed. For instance, near the head waters of Little Falls brook in Chevy Chase is a sewage irrigation field belonging to that community which is so ineffectively operated that crude sewage passes through it to the stream and conditions there are almost intolerable, especially in summer when the stream flow is small. "The worst condition," says Robert B. Morse, chief engineer of the State Health Department, "in the entire drainage area of the Anacostia river exists on Sligo and Takoma Park branches, below the so-called sewage disposal plants of Takoma Park. From Silver Spring some pollution reaches Sligo branch through the small stream draining that community, but which has no noticeable effect. Not until the disposal plant is reached does the condition of Sligo branch become offensive. The sand filters at this point have been examined on several occasions and show the effect of gross neglect. At the time of one examination, sewage was being discharged upon one of the beds, but instead of passing through the sand, it was flowing through a hole in the center of the bed directly into the underdrains and thence to the stream. At another time even this pretense at treatment was not being made, for the sewage was entirely shut off from the beds and was discharging directly into the stream by means of a ditch. The conditions existing at this latter time were almost indescribable. . . . A short distance below this plant, Sligo branch is joined by Takoma Park branch, a stream badly polluted by sewage derived from a small disposal plant near its head waters. This installation consists of a septic tank and subsurface irrigation field. At the time of examination, sewage was flowing through the septic tank and also through the underdrains, but the field appeared to be clogged and was absolutely incapable of performing its function, the result being that a septic liquid was discharged directly into the small stream. The tank apparently had not been cleaned for some time and was badly clogged with sludge."

Such conditions as these are certainly strong arguments for the combining of the various small communities in the operation of one disposal plant which could be properly looked after and operated. In its report on the situation, the Health Board states that, "Owing to the existence of a large number of communities within a comparatively small area and the increasing density of population, the sewerage of the various populated localities separately, together with the construction of numerous small disposal plants, would not serve as a satisfactory solution of the problem for any considerable time in the future." The entire area under discussion, about 222 square miles, comprises the drainage areas of four streams. It was proposed that an inner zone of this area, embracing about 103 square miles and including those sections lying comparatively near the District of Columbia, should be organized into a sanitary district under the government of a commission. The report cited the Metropolitan Water and Sewerage District in Massachusetts, the Bronx Valley Sewerage District in New York, the Passaic Valley and the Orange-Montclair-East Orange sewerage districts in New Jersey as precedents for such co-operation. It was estimated that the main drainage systems which would be required would

cost \$538,500. It was proposed to turn the sewage collected from three of these districts into the sewers of the District of Columbia under arrangement with the authorities of said district, and to provide a plant for treating the sewage from the fourth or Little Falls drainage area. The plant for this area would have a capacity of 400,000 gallons per day for the present, with room for ultimate installation to take care of at least four million gallons a day, Imhoff sedimentation tanks being suggested for this purpose.

An interesting point of minor importance described in the report was the method of estimating the capacity of the sewers in the several main drainage systems. A separate system of sewers was to be used throughout and the flow assumed in designing the house sewers was based on 80 gallons per capita of tributary population, plus ground water leakage of 10,000 gallons per day per mile of sewer. The flows which the trunk sewers were designed to carry when running full were taken from the diagram shown herewith, which gives the amount of sewage which it is deemed necessary to provide as the capacity of any sewers of the separate system when flowing full, based upon the average daily flow. For instance, if the average daily flow reaching a certain sewer is estimated to be three million gallons per day, we find from the diagram that the sewer should be designed to carry a maximum of eight million gallons per day when flowing full. If, however, the estimated average flow is fifteen million gallons, the sewer would be designed for a capacity of thirty million. The ratio between estimated average flow and the quantity used in calculating the size is a factor designed to cover variations between maximum flow and average flow and also to allow for miscalculations in estimating average flow; both of which would ordinarily be less the larger the sewer; or, what would generally be the same thing, the larger the area it drained and the greater the number of tribu-

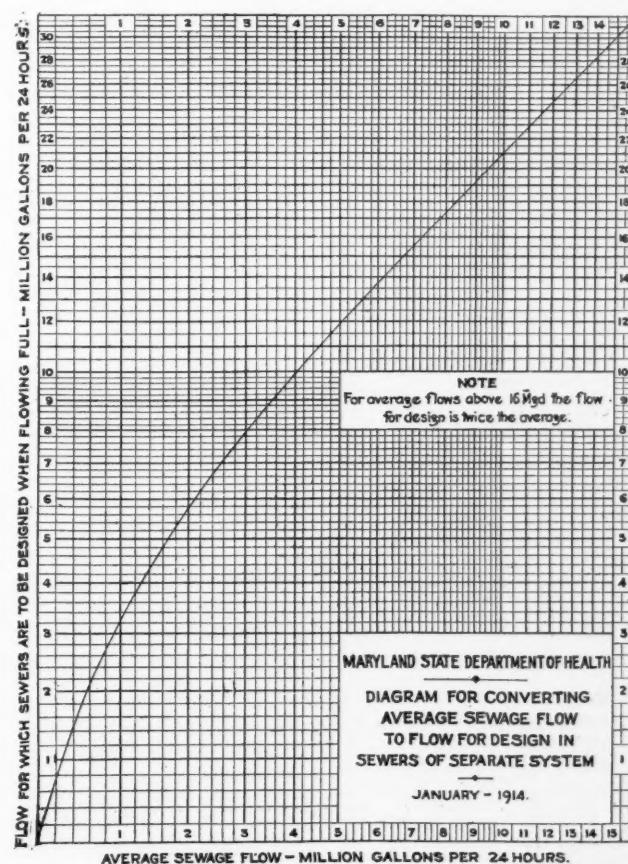


DIAGRAM FOR CALCULATING CAPACITY IN DESIGNING SEWERS.

tary sewers which it received. "The idea of designing sewers from a rational curve of this sort was, so far as the writer (Robert B. Morse) is aware, suggested by Ezra B. Whitman, former division engineer of the Sewerage Commission of Baltimore City. The curve drafted by him was based upon actual measurements of sewage flow in various cities. . . . The curve was revised by the writer, used on the Baltimore sewerage work, and was afterwards suggested by him for use on the work of the Metropolitan Sewerage Commission of New York. The curve on diagram 3 (that shown herewith) is the one finally adopted by the Metropolitan Sewerage Commission, and was drawn up by John H. Gregory, then engineer of that commission. It was adapted from the curve used at Baltimore by multiplying the average sewage flow by the corresponding factor, so that when the average flow was known, that for which the sewer should be designed when full would be apparent at once."

DEPARTMENT OF HEALTH LAW CONSTITUTIONAL.

As described in our issue of July 16, 1914, the General Assembly of Maryland, in April of that year, gave the State Department of Health wide powers of supervision over water supply and sewerage.

The feature of this law allowing the Department of Health to require the installation of water supply and sewerage systems, and that inflicting the duty of raising funds for this purpose upon municipal officials, was contested by the county commissioners of Baltimore County, who had been ordered to provide sewerage systems for several sections of that county. The Circuit Court of Baltimore County declared the state law unconstitutional as to the features mentioned, but the decision has been reversed by the Court of Appeals, the highest court in the state. This court decided that it was within the police power of the state, and it was the duty of the State Board of Health to require the establishment of water supply and sewerage systems wherever their absence was a menace to the public health; it further decided that it was the duty of the municipal authorities to raise funds for this purpose when so ordered, and that it lay within their power to raise such funds by taxation, the assessment of benefits, or by the issuance of bonds up to 2 per cent of the taxable basis of the county or municipality without special legislative enactment or a popular referendum.

Since the passage of the act much progress has been made toward the establishment of better sanitary conditions in Maryland. The Legislature meets only once in two years, and in a number of instances municipalities have requested an order from the Department of Health to enable them to proceed without delay in providing water supply and sewerage improvements that were pressing.

The following orders for water supply and sewerage construction have been issued by the State Department of Health within the past year:

Chestertown—New source of water supply and proper storage facilities.

Westernport—Purification of supply and proper storage facilities.

Perryville Water Company—Construction of purification works.

Crisfield—Sewer construction.

Frostburg—Extension of sewerage system.

Baltimore County—Construction of sewerage system and treatment works at Arlington and Govans.

Montgomery County—Construction of sewerage system and treatment works for Little Falls Brook Drainage area.

Under the State law no water supply nor sewerage construction work can be done without the approval of plans and specifications by the Department of Health

and the receipt of a permit therefor. During the first year of the operation of this law ending April, 1915, sixty-three permits for water supply construction and forty-eight permits for sewerage construction have been issued.

For the above information we are indebted to Robert B. Morse, chief engineer of the department.

DISINTEGRATION OF CONCRETE TANK.

In our issue of May 20 we made the statement referred to by the letter below, this being on the authority of W. G. Potter, who, in a paper before the Western Society of Engineers describing this system, made the following statement: "There was absolutely no ventilation, with the result that in places the concrete was entirely disintegrated by the sewer gases, leaving holes through the roof."

Editor Municipal Journal,

50 Union Square, New York City.

Dear Sir:—In your issue of May 20th, 1915, I note brief mention made of Aberdeen's sewage treatment. Among other things you state: "The septic tank was enclosed with concrete walls and roof, without any ventilation, and as a result the concrete was so badly disintegrated by the gases from the septic action as to be in danger of collapsing."

In justice to concrete construction and with no desire on my part to commence extended discussion with reference to action of sewer gases on concrete, your readers are entitled to the facts in the case, which are as follows: The disintegration of the concrete in these septic tanks is due primarily to the use of defective aggregates containing large percentages of soft, disintegrating shale and not to the action of sewer gases, although the latter may have had some slight effect. Practically all concrete construction, particularly where same is exposed and where the same aggregates have been used, is a more or less total failure and many thousands of dollars worth of this work never had any connection or contact with sewer gases.

Yours truly,

R. B. EASTON, City Engineer.

This letter was submitted to Mr. Potter, and his reply was as follows:

Editor Municipal Journal,
New York City.

Dear Sir:—Relative to the disintegration of old septic tank at Aberdeen, S. D., I think that both Mr. Easton and myself are right. The material used for that concrete work was a local gravel containing a large percentage of shale. Mr. Easton is right in saying that that material has disintegrated there in many other places not affected by sewer gases. However, I believe in the case in question the disintegration was very largely assisted and hurried by the action of the gases in the tank, which was entirely unventilated except by boarded up windows and tight iron manhole covers. In the new plant constructed by me the local gravel was entirely barred out for concrete.

Yours very truly,

W. G. POTTER.

PENNSYLVANIA GOOD ROADS DAY.

The weather was very unfavorable to the success of Pennsylvania's Good Roads Day, May 24th (which was referred to in our issue of May 6th), it having rained continuously that day throughout the greater part of the state, but in spite of this, about 82,000 men worked on more than 6,000 miles of road, and the results are considered to have been very satisfactory, especially considering the weather conditions.

Returns from the 66 counties show that in only two was no work done. The smallest force working in any one county was 22 men and 5 teams, and the largest was 14,000 men, 2,500 teams and 120 drags working 150 miles of road. Drags were used in 40 of the 64 counties where work was done, and road machines in 10 counties. Altogether 82,393 men, 14,858 teams, 1,859 drags and 83 road machines were at work throughout the state on between six thousand and seven thousand miles of road.

Municipal Journal

Published Weekly at

50 Union Square (Fourth Ave. and 17th St.), New York
By Municipal Journal and Engineer, Inc.
Telephone, 2805 Stuyvesant, New York
Western Office Monadnock Block, Chicago

S. W. HUME, President

J. T. MORRIS, Treas. and Mgr. A. PRESCOTT FOLWELL, Secretary
FRED'K A. SAWYER, Western Manager
A. PRESCOTT FOLWELL, Editor

Subscription Rates

United States and possessions, Mexico, Cuba..... \$3.00 per year
All other countries..... 4.00 per year
Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

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Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

JUNE 17, 1915.

CONTENTS

	Page
Albany's Sewage Treatment Plant. (Illustrated.)	837
Philadelphia Sewage Treatment Report.....	840
Fitchburg Sewage Disposal Plant. (Illustrated.)	842
Sewage Disposal in Maryland. (Illustrated.)	842
Disintegration of Concrete Tank.....	844
Pennsylvania Good Roads Day.....	844
Joint Sewerage for Small Communities.....	845
Separate and Combined Sewerage Systems	845
Fine Screens for Treating Brooklyn Sewage.....	846
The Week's News. (Illustrated.).....	847
Legal News—Notes of Recent Decisions.....	853
News of the Societies.....	854
Personals	856
New Appliances. (Illustrated.).....	857
Industrial News	857
Contract News	859

Joint Sewerage for Small Communities.

The conditions as to sewerage in the several small communities of Maryland which lie around the District of Columbia, as set forth in the report of the State Board of Health, referred to elsewhere in this issue, illustrate the advantages of co-operation in handling sewerage matters where there are numerous adjacent small communities. Such groups of municipalities are to be found surrounding most of our large cities, although in several cases the greater number of them have been absorbed by the cities which formed their nucleus. For most of such groups, expense of sewerage construction and of maintenance can be reduced, efficiency of operation increased and often the solution of problems simplified by a combination of the several communities in accordance with the topographical or other natural features. One important reason for this is that in sewerage systems topography is imperative and such systems must conform to the slope of the land, regardless of political boundaries.

But perhaps the most urgent reason for joint action in sewerage matters is the exceeding importance that treatment plants receive expert oversight in their operation. The expense of such oversight is generally too great for a small community and the result is as described in the report referred to—the plants are almost totally neglected and effect no purification of the effluent, while they themselves become more of a nuisance than the one they were supposed to remedy. Even full power

in a state board of health is not an adequate solution of the problem for it cannot take the place of, but can only endeavor to enforce, daily attention by a competent superintendent.

This matter of skillful operation is too often overlooked, it appears to us, even by designing engineers. The engineer may compare a project for a joint sewage treatment plant, to serve two or three communities, with others for a separate plant for each community and find that, allowing for the cost of outfall sewers from the more distant communities to the joint plant, the separate plants furnish the cheaper solution. But should he capitalize the salary of a competent manager for each plant and add this to the other costs, he might find the joint plant much the cheaper. At any rate, he should never fail to include this item in his calculation, if only to impress on the municipal officials that a competent superintendent of the plant is as important as any part of the construction.

Separate and Combined Sewerage Systems.

In two reports recently issued treating of sewerage matters, both of which are referred to in this issue, reference is made to the relative advantages of the separate and combined systems. In the report of the chief engineer of the Maryland State Department of Health there is no discussion of the subject but merely the statement that, although there may be reasons for adopting the combined system of sewers in certain thickly settled communities, in the suburban districts considered in that report there was no question but that the separate system should be employed.

The Philadelphia report, however, deals with conditions as to density of population which are entirely different, most of the areas considered being decidedly urban in their character; and in this report the engineers recommend the combined system for most of the city, although they propose systems of separate house sewers for two sections, one along the Delaware river above and below the water works intake, the other at the southern end of the city in a section so surrounded with rivers and creeks that surface drainage is offered in every direction. The advantages which the Philadelphia engineers find in the combined system are stated on another page of this issue; but it should be borne in mind that these form part of a report upon a special project and do not apply as general arguments in favor of the universal use of combined sewers.

There can be no question that the only plan to be followed in Philadelphia is the utilization of the existing combined sewers, intercepting their dry weather flow and conducting it to treatment plants. Entirely aside from any other consideration, except the general one that such a solution is practicable, there is the deciding argument that, if the treatment of the city's sewage were conditional upon the building of 1,300 miles of house sewers in streets already occupied by combined sewers and all which this would mean not only of expense but also of tearing up the pavements and interference with traffic, together with the changing of house connections for every building, there can be little doubt that the carrying out of the project would be postponed indefinitely. The reaching of such a conclusion in this case, however, does not mean that in cities or sections of cities where a combined system is not already installed, it would be advisable to build combined sewers rather than separate systems.

In the treatment of Philadelphia's sewage the aim is to prevent nuisance only, and no special consideration is given to whether or no the pollution reaching the river carries germs of disease. Consequently, the pollution contributed by the washings from street surfaces at the beginning of rain storms is considered as important as

that from the house sewers. It might be held that this would not be a proper assumption to make in most cases; it might be questioned whether it is the proper one to make in this case, but it forms one of the ideas upon which are based the arguments in this report for the combined system.

In using interceptors with combined systems, it seems necessary to permit a large part of the contents of the combined sewers to flow into the streams during times of heavy rains. In the Philadelphia plans it is proposed to provide interceptors which will receive 10 per cent more than the maximum dry weather flow. If during a time of such maximum flow there should be a rainfall with a runoff equal to 20 per cent of it, an amount equal to half of this would overflow into the stream. While this amount would be small, 83 per cent of it would be house sewage; in other words, we would have discharging into the stream during a light rain a fluid which is only a little more diluted than the actual house sewage itself. On the other hand, in times of heavy rain when the runoff is ten times dry weather flow, we would have 99 per cent of the runoff reaching the river; and as street water and house sewage would be thoroughly mixed, this discharge into the river would carry with it practically 99 per cent of the house sewage. In other words, during times of heavy rain, practically all of the liquid filth of the city of all kinds would be discharged into the streams. We do not mean to imply that either of these conditions would necessarily be seriously objectionable, but merely to call attention to the fact that they would exist under a system and operations such as those designed for Philadelphia. On the other hand, with an entirely separate system we would have the house sewage entirely excluded from the streams. In case of a rainfall of 20 per cent of the maximum dry weather flow, which would probably be about sufficient to carry to the storm sewers the polluted street wash referred to, we would have all of this entering the streams as compared to about 8 per cent of the house sewage under the Philadelphia plan. In times of heavy rain, we would have the same street wash entering the streams as compared to 99 per cent of both this and the house sewage which would be so discharged under the Philadelphia plan.

The first argument offered in the report, that the lifts and consequent pumping costs will be less with the combined than the separate system, may apply to this case because of some peculiar local conditions, although we cannot find any explanation of it in the report. It would, however, be true in only one case out of a thousand, since there is no method of which we know by which combined sewers can be given flatter grades than separate house sewers and still produce equally satisfactory conditions as to velocity of flow and consequent prevention of deposits; nor can we conceive of any reason why it is possible to place combined sewers at a higher elevation than house sewers and furnish equally satisfactory drainage to buildings. In fact, exactly the reverse is the case, since if the invert of a combined sewer be placed as high as the invert of a very much smaller house sewer, water from the former when it is flowing full would back up into the house connections and probably into the houses themselves. As to the pumping cost being less, this would ordinarily be true only if either the lift or the amount pumped were less. As we have just seen, the lift could not be expected to be less; and as to the amounts, these would be greater, since in intercepting the dry weather flow from combined systems, provision is made for passing to the interceptor a portion of the rain water, and consequently the amount to be pumped would be increased by the amount of such rain water so admitted to the interceptors.

The argument that the occasional increase in volume of sewage by the addition of storm water would be compensated for in its effect upon the disposal plant by the fact that the sewage was more diluted and could be passed through the works at correspondingly greater speed is only partly true. In the case of sedimentation tanks, for instance, the sedimentation of the suspended matter depends largely upon the rate of motion through the tank, and the idea that, if a certain polluted water be diluted with 50 per cent of clear water and then passed through the tanks at a 50 per cent greater velocity, an equal amount of sediment would be collected is not, we believe, maintained by anyone. Additional units of tanks and beds could be provided to treat the additional flood water (as is the general practice in England), but the increase in expense involved by such duplication of construction would be very great.

The argument that millions would be saved to the house owners (the estimate is apparently based on about \$100 per house) by not having to put in two sets of connections instead of one, would seem to have little weight, for in cities provided with separate systems there are very few houses which have two connections of this kind; but in the majority of cases the only connection is that carrying the house sewage to the house sewer, the rain water being allowed to flow into the gutters. Undoubtedly, there would be considerable advantage in having two connections, one of which would carry to the storm sewer all of the roof water and drainage from paved courts and yards; but in the majority of cities few residents go to this expense and few, if any, cities require it.

FINE SCREENS FOR TREATING BROOKLYN SEWAGE.

At intervals during the past two or three years we have referred to plants installed for treating the sewage from various drainage areas of Brooklyn, N. Y., one of these being that known as the 26th Ward plant. It is at this plant that the city is now carrying on experiments in sewage treatment, one of the primary objects of which is to obtain data on which to base plans for the proper treatment of the sewage in this ward. The present plant has been in operation for a number of years, during which time the population has so increased that the amount of sewage reaching it is more than double its capacity. Moreover, this amount is increasing rapidly and the situation has become so pressing that it was decided last winter to take some immediate action toward preliminary treatment of the sewage, with the idea of utilizing this in connection with further treatment, the nature of which would be decided upon after more extended operation of the experimental plant.

With this object in view, bids were received on February 17 for three alternative projects—Riensch-Wurl screens, with direct removal of the screenings; Imhoff tanks, with drying beds for sludge; sedimentation tanks, with separate sludge digestion tanks and sludge drying beds. The plant was specified to have a capacity of twelve million gallons of sewage per day when operating under average ordinary dry weather conditions. After receiving the bids, careful consideration was given to them before awarding the contract, which delayed this until early in May, when a contract was awarded to the North Eastern Construction Company, which had bid on installing Riensch-Wurl screens. Work on this contract is now under way and it is expected that the plant will be installed ready for operation within the next month or six weeks; the fact that the plant could be installed ready for operation much more quickly than either of the others having been one of the reasons for adopting screens.

The WEEK'S NEWS

Highway Department News of Pennsylvania, Minnesota and North Carolina—Water Supply in New Jersey—Los Angeles Electric Bonds Sustained—Wheeling's Municipal Gas Plant a Failure—Fire Losses in Massachusetts—New Auto Apparatus—Home Rule for Wisconsin Cities Killed—Commission Victories and Defeats—Pennsylvania Municipal Legislation—Chicago Car Strike—Jitney Regulation in New York State—City Planning in Ohio—Public Employment Bureaus in California.

ROADS AND PAVEMENTS

Convict Labor for Pennsylvania.

Harrisburg, Pa.—Gov. Brumbaugh approved the two Graham house bills regulating convict labor. One provides that inmates of the Eastern, Western and Huntingdon prisons may be employed eight hours per day in the production of supplies for these or other institutions maintained by the county or state. The convicts may also be employed in road building or blasting materials or in the preparation of building material for construction of state institutions. The work would be under the direction of the prison labor commission, consisting of one member of the board of inspectors of each of the three prisons. An appropriation of \$75,000 was made to get the system into operation. The convicts shall receive from 10 to 50 cents per day for their labor. The other act provides that five per cent of the inmates of the various county prisons, workhouses and reformatories may be employed in the manufacture of supplies for use in any institution maintained in whole or part by the state in the same county in which the penal institution is located.

Minnesota Highway Commission Economizing.

St. Paul, Minn.—The state highway commission is gradually reducing its field force to conform with the decreased annual appropriation for expenses provided by the recent legislature. Already twenty-six road engineers and five bridge engineers have been let out and there is a prospect that still further reductions will be made. The twenty-six road engineers have not lost their positions altogether for nineteen counties, it is said, have employed the former state road engineers as superintendents of construction. In the bridge department of the highway commission the work of supervision has been reduced by about 70 per cent. The commission now only undertakes the supervision of bridges for which the state aid is given. This year the commission will be concerned about only 150 bridges, while last year their supervision extended to 350 bridges. According to State Engineer G. W. Cooley, the reduction of the appro-

priation from \$150,000 to \$100,000 this year does not represent the total reduction. The commission also is obliged to pay the expenses of survey instead of the counties, and this would amount to almost as much as the salary of the engineers in charge. There are 20,000 bridges in Minnesota, of which 1,000 were built on plans supplied or approved by the commission. The other 19,000 bridges are for the most part built of wood or light steel.

Big Road Appropriations Vetoed.

Sacramento, Cal.—Governor Johnson has refused to sign the bills appropriating \$100,000 each for the section of the highway from Los Angeles between Mecca and Brawley and the division of the trans-continental highway between Holtville and Yuma despite the opinions of state board of control, his own highway commission, the association of supervisors from every county of the state, and legislators from every assembly and senatorial district, all of whom officially approved the construction of the two roads. The governor says the appropriations for the road should take their chances in the forthcoming election on a highway bond issue.

New Bridge Proposed.

West Springfield, Mass.—The West Springfield Chamber of Commerce, under President Henry H. Denton, has prepared plans and is urgently advocating the building of a splendid new bridge over the Connecticut river. The location considered the best for the bridge is at Bridge street and the Chamber of Commerce favors this site with an overpass and a curved approach running into Broadway at Vernon street. The location is in the center of the greatest assessed valuation section and is convenient to industrial, business, amusement and transportation centers. At this point a bridge 70 feet wide would be built and high enough to be out of all danger of high water. The proposed bridge rises from an easy 3 per cent grade, 18 feet above the railroad tracks to 40 feet above low water. The bridge, as shown in the accompanying illustration, is a striking structure planned by Bliss, Lavalle & Howes. It is proposed to acquire extra land by excess condemnation.



Courtesy, H. H. Denton, West Springfield, Mass.
PROPOSED NEW BRIDGE FOR WEST SPRINGFIELD, MASS.

Work of North Carolina's Highway Commission.

Raleigh, N. C.—Although the North Carolina highway commission has been formed only a very few months its work is progressing rapidly, the commission having within the past three months assumed the supervision, through its engineers, of highway construction in many counties, representing an outlay of probably one million dollars. State Highway Engineer W. S. Fallis is directing this work with the assistance of other engineers called into service as the demands require. This work is largely in Person, Rockingham, Mitchell, Avery, Caldwell, Swain, Chatham, Edgecombe, Wilkes, Surry, Davidson, Watauga, Ashe and Alleghany counties. The state highway commissioners are Guy V. Roberts, Col. Benehan Cameron, E. C. Duncan, Dr. Joseph Hyde Pratt, Prof. J. C. Riddick and Prof. E. F. Hickerson.

Celebrate \$2,500,000 Highways.

Springfield, Mass.—Hundreds of citizens of western Massachusetts who had worked for the passing of the good roads bill and the general betterment of rural conditions in this section of the state celebrated at a big banquet in honor of the \$2,500,000 good roads appropriation for the five western counties. Governor David I. Walsh, Speaker Channing H. Cox, President Calvin Coolidge of the senate and a number of legislators and members of commissions were guests. There were present the legislative committee on roads and bridges, the ways and means committees of both the house and the senate, members of the highway commission, the western transportation commission, legislators from all parts of the state, former members of the Legislature, members of the governor's council, former councilors and men prominent in the civic life of the cities and towns of all the western counties. The event was under the direction of the Springfield Board of Trade, the Western New England Chamber of Commerce, the United Hill Towns' Transit Association, the Hampden County Improvement League and the Springfield Automobile Club.

WATER SUPPLY

New Jersey Cities and the Wanaque Supply.

Trenton, N. J.—Following a number of conferences the cities of Passaic, Paterson and Montclair, which have hitherto opposed all attempts of Newark to obtain the Wanaque supply, have finally agreed to unite with Newark in the development for all. At a conference held in Paterson of Mayor George N. Seger and all the commissioners of Passaic, Mayor Robert H. Fordyce and other Paterson officials and Mayor Harrison and Water Commissioner Kidde, of Montclair, it was decided that the state water supply commission be asked for a development of the Wanaque water shed. The proposition of the three cities stated that: A conservation of the potable waters of the northern portion of New Jersey under state supervision and control, is necessary and affects all communities alike; therefore the development of the Wanaque watershed for the benefit of these communities, and such others as are or may be in need of supply, is necessary and should be undertaken by the state water supply commission; in order to participate in the development, it is necessary for each of these three communities to acquire a distribution system; it is advisable for the three communities to acquire the distribution systems now in service either by purchase or condemnation; the governing bodies of the municipalities by resolution or ordinance acquire their respective distribution system with a view to turning over to the state water supply commission for operation, the pumping station, filtering plant, pipe lines and appurtenances, now controlled by the New Jersey General Securities Company, and which now serve the three systems in common. Each of the cities, therefore, wants the right to buy from the East Jersey Water Company the distribution system within its limits which is now owned by the company. The holdings of the company are appraised at about \$9,000,000 and will be condemned if necessary. The filtration and pumping station at Little Falls would also be used as a supplementary plant.

Meanwhile representatives of Glen Ridge, Nutley, Harrison, Kearny and East Newark have conferred on the plan.

A tentative form of contract was submitted by the commission. It provided that the commission shall begin the development of the Wanaque under the plan drafted by its consulting engineer, Morris R. Sherrerd. The municipalities entering into the plan must, upon notice from the state commissioner, pay to the commission in instalments as may be agreed upon, \$200,000 for each million gallons of daily supply contracted for. The \$200,000 for each million gallons daily being a capital expenditure, the municipalities must also agree to pay for a consumption equal to at least half the amount contracted for, at the rates fixed by the state commission. Payments shall be made quarterly. The contract will take effect only if a sufficient number of municipalities join in the plan. The method of procedure would be much the same as followed by the municipalities hereabouts in building the Passaic Valley trunk sewer. All the municipalities represented own the distribution systems serving them. The commission suggested that it would give the Butler Water Company the Apshawa privilege with the distinct understanding that it would not figure as value if the plant were sold to a municipality or a group of municipalities or if it were condemned. The town of Kearny was the first of the municipalities to send a signed agreement to the state water supply commission binding itself to pay \$400,000 for the right to take from the Wanaque watershed when completed 2,000,000 gallons a day. In addition to the amount paid for this privilege the town agrees to pay a minimum equivalent to the cost of half this daily supply, whether it is consumed or not. Harrison is going to have a referendum on the question of taking another 2,000,000 gallons.

Loss By Water Stealing.

Portland, Ore.—Commissioner Daly, of the department of public utilities, who has supervision over the water bureau, announces that results obtained from the survey of water connections which is being made show that during the last 10 years this city has lost \$228,194 in revenue due to water used through secret service connections and fixtures which have been installed without the knowledge of the water bureau. Thus far 6,351 inspections of a total of 57,159 connections have been made, and 515 services were found to exist where the revenue was less than the scheduled rate. Adjustments have been made so that the revenues of the water bureau have been increased \$220.55 a month. Added to the loss of revenue it is found that of the 6,351 inspections there were 557 leaks of various natures, which is 10 per cent of the number inspected, and it is considered by the water bureau fair to assume that this ratio will be maintained throughout the balance of the survey. A great many services were found connected with the mains where no reports of such connections had been made to the water bureau. When such connections were unearthed the property owners have been billed for the back water bills, amounting in the aggregate to thousands of dollars. Among other unlawful connections discovered were three refrigerating plants, one of which was manufacturing ice in large quantities, and none of which had ever paid any revenue to the city.

Commission Valuation Upheld by Court.

Oshkosh, Wis.—The supreme court at Madison affirmed the ruling of the circuit court for Dane county upholding the valuation of the state railroad commission on the plant of the Oshkosh Water Company which has been operated by the city government for a year and a half. The action was brought in the supreme court by the water company, plaintiff and appellant, against the railroad commission. In November, 1912, the people of Oshkosh voted to purchase the private plant of the Oshkosh Water Company. Under the terms of the public utility law the railroad commission made a valuation fixing the value at \$525,000. The city took possession of the plant on October 4, 1913. The company took an appeal to the circuit court of Dane county claiming that the award was insufficient, and when the court affirmed the award a further appeal was taken by the company to the supreme court. The company contended in the supreme court that the award of the railroad commission was not sufficient because the latter held the present value of the physical property to be \$510,953 and

that the company on the trial in the circuit court showed that the property had a "going" value of at least \$80,856. It asked that the compensation for the plant be increased to \$591,809.

Free Meters in Duluth.

Duluth, Minn.—From now on patrons of the water and light department will be supplied with meters. The commissioners adopted a resolution introduced by Commissioner Merritt, authorizing him to furnish these meters free of charge and to allow water users, who have paid for their meters, credit on their accounts, less 10 per cent annually for depreciation. In addition, the water and light department was given authority to purchase 800 water meters and to advertise for bids for them. The council heard the first reading of an ordinance appropriating \$6,000 to pay for these meters. Manager D. A. Reed, of the water and light department, in a communication to the council explained that the cost of furnishing meters will be about \$45,000 and that the new system will result in an annual increased operating expense of \$8,000. There are 8,046 meters now in use, which are owned by the consumers. The present action of the council followed a recommendation made before by Mr. Reed during an address before the commissioners on the recent convention of the American Water Works Association. Metering, he says, will reduce waste and the city ownership of the meters will obviate all objections of consumers.

Water Plant Shows Balance.

St. Joseph, Mich.—The annual report of the city water department for the fiscal year ending March 31 shows a cash balance on hand nearly double that of a year ago. April 1, 1914, the cash balance was \$2,734.52. It grew this year to \$5,140.75. This is the best showing ever made by the department. The disbursements for the year amounted to \$14,432.30, divided as follows: Additions to system, \$2,510.88; repairs, \$1,352.76; interest on bonds, \$2,005; operating cost, \$8,563.66. Receipts for the year amounted to \$14,838.53, and to this total is added a credit of \$2,000 for use of water by the city. There is still outstanding \$50,000 in bonds at four per cent. Next year it is proposed to take up a portion of this issue: During the year there was used 257,629,322 gallons of water. During the winter months the average daily pumpage is 700,000 gallons. This average is more than doubled during the summer months. The system has 130 fire hydrants.

Beautifying Waterworks Grounds.

Jacksonville, Fla.—Following the completion of the new pumping station in the waterworks grounds, the park department of the city is now engaged in making the grounds attractive, a large circle of trees having been planted around the surface reservoir. The accompanying illustration shows some of the improvements.

Waterworks Finances in Good Condition.

Middletown, O.—The report of State Examiner Aaron Moul, which has just been made public, covers the operation of the waterworks department from July 1, 1913, to

March 31, 1915. It is shown in this report that there are 3,253 water consumers' accounts, 1,200 on flat rate and 2,055 on metered rate. The revenue for 1914 amounted to \$31,468.34, classified as follows: Flat rate accounts, \$8,722.76; meter rate accounts, \$18,725.73; meter rents, \$2,596.60; miscellaneous accounts, \$1,423.25. Deducting from this rebates amounting to \$491.56 and refunds of \$41.39, leaves a net revenue of \$30,935.39. The report shows that the supply of water furnished to Middletown consumers of city water is obtained from a system of wells of an average depth of about 65 feet. During the summer and fall of 1914 engineers Pollard and Ellms, of Cincinnati, O., made an extensive investigation as to the water supply conditions of the city of Middletown, both as to the supply and distribution of same.

STREET LIGHTING AND POWER

Los Angeles Electric Development Bonds Sustained.

Los Angeles, Cal.—The city is at liberty under a decision of the state supreme court, to market \$6,500,000 bonds voted nearly a year ago to develop and distribute electric power from the Los Angeles aqueduct. The superior court affirmed a decision rendered by the superior court of this county, sustaining a demurrer of the city to a suit instituted to enjoin the sale of the bonds. The injunction suit was based on the contention that the ballot illegally contained two bonding provisions, one to develop aqueduct power, and the other to provide funds for the purchase of the Southern California Edison distributing system. The process of condemning the latter is already under way.

El Paso Celebrates White Way.

El Paso, Tex.—El Paso's dream of an illuminated San Francisco street, leading from the union station to the center of the business district, has been realized. Mayor Tom Lea turned on the switch that lighted 52 lamps lining the street. The event, representing a year's work on the part of the Chamber of Commerce, was witnessed by several thousand people and was heralded with much noise and fireworks.

Municipal Gas Plant May Be Closed.

WHEELING, W. Va.—In his first message to the new city council, Mayor H. L. Kirk recommended abandonment of the municipal gas works, on the ground that it is not self-supporting, and that it is certain to prove a burden to the city as long as it is operated. Council is expected to act favorably on the recommendation, and thus end a controversy over that public utility which has raged for years. Despite the fact that council some months ago voted to continue the municipal gas plant, the board of control decided to draft a message to the new council asking for immediate abandonment. This plant cost the city \$110,000. That the gas plant is consistently losing the city money is attributed to the fact that the city is charging 65 cents per thousand cubic feet for the product, while illuminating gas can be bought of the Natural Gas Company for 28 cents



Courtesy, Jacksonville (Fla.) Times-Union.

JACKSONVILLE'S WATERWORKS BEAUTIFIED.

per thousand cubic feet. The city acquired the gas plant by purchase about 40 years ago. For many years it yielded revenue. When natural gas was piped to Wheeling, to protect its monopoly the city inserted a clause in the franchise of the Natural Gas Company of West Virginia forbidding the sale of natural gas for illuminating purposes, and also passed an ordinance making it a misdemeanor for a citizen to burn natural gas as an illuminant. There were police court prosecutions and litigation and eventually a decision by the state Supreme Court, which established the right of a consumer to use gas for any purpose he saw fit after it passed through his meter. Since that decision was given last year every month has seen a reduction in the number of customers of the city. Furthermore, the increased use of electricity has made the plant depreciate in value. Six months ago, the board asked council to close the plant, due to the increased cost of oil and accessories. Some time ago the gas company offered the city \$5,000 per year for the use of its pipes, but this was refused.

Berlin Purchases Its Electric System.

Berlin, Germany.—The city of Berlin has undertaken the purchase of the electric lighting and power plants of the Berlin Electric Works, the transaction involving an outlay of \$32,000,000. The system has developed from a very small beginning, inaugurated by the German General Electric Co., to one of the largest electric plants in Europe. The service was begun in 1885 with 3,000 incandescent lamps and increased until in June, 1914, 2,107,000 incandescent lamps, 44,200 arc lamps, 43,000 electric motors, and 7,850 other electric appliances were connected with the company's mains. The capacity of the company's plants in 1885 was 37,000 kilowatt hours; in 1915 it was 267,600,000 kilowatt hours.

FIRE AND POLICE

Police Plan Mutual Insurance.

New York, N. Y.—Plans for a mutual insurance association, solely for policemen, are to be submitted soon to the members of the department, the commissioner, and city and state authorities by a committee of policemen, which has worked on the plan nearly a year. The association is to be operated on the same basis as the incorporated insurance companies of New York, and will be under the supervision of the state superintendent of insurance. The police committee on insurance, assisted by members of the city's pension commission, made inquiries among the policemen, and found that, as the policemen had difficulty in securing insurance from leading insurance companies because of the generally accepted hazards associated with police duty, the general sentiment of the police force was in favor of a single insurance association which would be entirely separated from all social features and other matters which did not pertain purely to insurance benefits. A tentative plan to merge all the police associations was submitted to Commissioner Woods and City Chamberlain Bruere, who referred it to the actuary of the pension commission. The actuary reported that an insurance association within the police department was practicable, and when the city authorities gave their consent he was directed to prepare a plan for the consolidation of the different police associations.

Year's Fire Loss in Massachusetts.

Boston, Mass.—Losses by fire in Massachusetts during the year 1914 were the heaviest in the history of the state, reaching a total of \$26,194,270, according to statistics of the state police. More than half of the total was due to the conflagration in Salem on June 25. The official loss for Boston for 1914 was \$3,044,621.34, as compared with \$3,218,378.69 in 1913, a slight decrease. The total number of fires in Boston for the year was 2301, an increase of 205 over the previous year. Of these fires 1042 were in frame buildings, 1163 were in brick and stone buildings and 96 were other than building fires. The total value involved in the Boston fires was \$51,896,850 and the insurance was \$47,097,124. The total insurance loss was \$2,884,361.95. Seventeen of the fires were of incendiary origin. The causes of 269 of the fires were unknown. The number of fires throughout

the state last year was 8429, of which 6019 were in frame buildings, 2133 in brick or stone buildings and 277 were other than building fires. The round value of the property damaged was \$215,678,456. The insurance loss was \$22,262,373.35. Of the number of fires only 143, or 1.69 per cent, were incendiary. There were 924 fires of unknown origin, or 10.96 per cent. Fires outside of Boston totaled 6128, showing an increase over 1913 of 979, which the state police officials consider extraordinary and for which they cannot account. The total loss caused by these fires was \$23,149,659.23. The following table gives the fire losses in some of the cities and towns:

City or Town	1914 Loss	1913 Loss
Arlington	\$32,164.00	\$70,839.52
Belmont	26,030.00	30,700.00
Beverly	66,067.13	39,662.49
Boston	3,044,621.34	3,218,378.69
Brookline	45,611.50	39,662.48
Cambridge	201,367.29	206,958.62
Chelsea	153,415.81	142,662.07
Everett	67,212.81	32,263.49
Lexington	26,686.50	14,461.09
Lynn	445,441.94	328,904.13
Malden	89,294.90	137,459.44
Marblehead	41,496.00	18,167.00
Medford	100,605.25	17,438.51
Melrose	27,336.09	17,931.16
Newburyport	25,126.50	81,306.88
Newton	65,693.30	87,519.63
Quincy	74,032.35	48,927.20
Reading	4,921.50	35,081.00
Salem	13,928,550.93	531,326.00
Somerville	225,388.54	138,617.80
Stoneham	35,570.47	66,095.75
Wakefield	14,818.00	9,533.00
Waltham	20,813.91	41,988.13
Watertown	27,053.52	32,768.10
Wellesley	679,989.62	22,370.31
Weston	8,405.00	7,201.73
Winchester	6,941.35	1,886.00
Woburn	96,832.59	142,345.60

Fire Insurance in New York State.

Albany, N. Y.—Part 1 of the annual report of the New York State Insurance Department covering the audited statements of the 264 fire, fire-marine and marine insurance companies for 1914 authorized to transact the above classes of business in this state has been made public by Superintendent of Insurance Hasbrouck. The companies wrote in the state of New York \$6,203,256,572 of fire risks in 1914, a decrease of \$64,614,308 over the preceding year. The excess of fire premiums received in the state of New York over fire losses incurred and estimated expenses was \$6,439,443.07, being a decrease of about \$1,200,000. The fire premiums received were about \$400,000 less than in 1913 while the losses incurred increased about \$1,000,000. The year 1914 seems to have been a most unprofitable one so far as the fire companies are concerned from an underwriting standpoint; however, all the companies authorized to transact business in New York State appear to have successfully weathered the unfavorable conditions shown by the above summarization.

MOTOR VEHICLES

Service Truck in Commission.

Newport, R. I.—Service truck No. 1, the first piece of apparatus for the reorganized fire department, has been delivered. The truck has a 144-inch wheelbase and a rated capacity of 1½ tons. It has solid rubber tires. It will make a speed of about 25 miles. The body may be used for carrying freight, coal or as a hose wagon. The truck will save a good deal of use of the chiefs' cars for supplies and for fire alarm work. In addition, it is the intention to use this machine for giving the present drivers of the department instruction in handling automobiles, so that when the new apparatus arrives next month they will be at least partially qualified to take charge and operate it.

New Hose Wagons Ordered.

Pittsfield, Mass.—The city has contracted with the Seagrave Company, Columbus, for two combination chemical and hose wagons, both motor-driven, to be delivered on or before August 10. The two machines with complete equipment will cost about \$11,000. Each machine will carry 2,000 feet of 2½-inch hose, and 250 feet of ¾-inch chemical hose on a reel. In addition, there will be a 24 and a 20-foot truss ladder on each, a 12-foot roof ladder and a 12-foot scaling

ladder. The scaling ladder will be new to Pittsfield. The machines are of 6-cylinder type, 130-horsepower, each equipped with a self-starter and a searchlight on the dash board. A 13-inch gong will be under the seat of each machine. Sewell cushion wheels will be used and on them Goodrich tires. The fire department committee has spent \$14,900 so far this year for fire apparatus. Chairman Retallick, of the fire department committee, announces that several men are installing the new fire whistle on the central station and it is expected that it will be completed by June 15. The fire department committee has also voted to buy four smoke helmets for use in fighting smoky fires or to guard against fumes from acids, etc. They will cost \$45 apiece.

New Chief's Car.

Haverhill, Mass.—Chief John B. Gordon is now using his new car, which was recently put into service. The first chief's car in the department was placed in commission five years ago at the same time as combination A. The new car, shown in the cut, is a 6-cylinder Chalmers. The old one will be overhauled and be used as a supply car and to answer brush fire alarms.

GOVERNMENT AND FINANCE

Home Rule for Wisconsin Cities Killed.

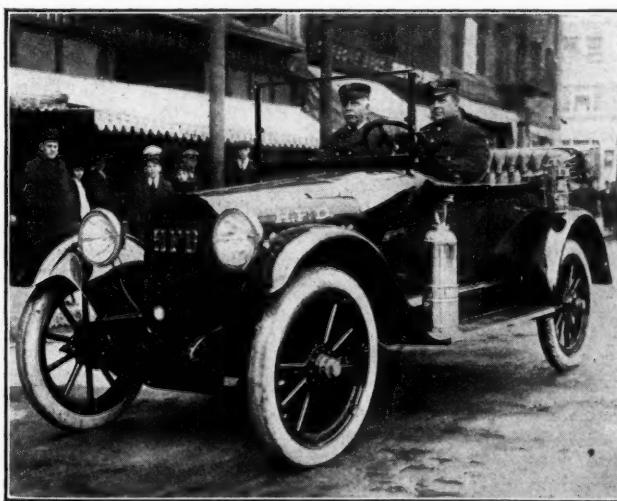
Madison, Wis.—The assembly killed by a vote of 40 to 21, the Arnold joint resolution amending the constitution, by giving towns and cities home rule, subject to the constitution and the general laws of the state. This amendment was endorsed by Gov. Philipp during the last campaign and it was passed in the senate by a good majority.

Oldest City Gets Commission-Manager.

St. Augustine, Fla.—By a narrow margin of 18 votes, 415 to 397, against, the oldest city in the country voted to adopt the commission-manager form of government. The city will be governed by three commissioners who will appoint a city manager. The new commissioners will be elected July 14. After this one commissioner will be elected each January. The initiative, referendum and recall are to be operative.

Somers System Adopted.

Bradford, Pa.—The Somers unit system of assessments has been adopted. The work is now proceeding under the direction of W. W. Pollock, president of the Manufacturers' Appraisal Company, of Cleveland. In Bradford the relative values in percentage of the various properties in the business district have already been determined, and the work will be extended to include the balance of the city as rapidly as it can be pushed forward. The values are being determined by the tax committee of the Chamber of Commerce, working in association with the mayor, the commissioner of finance, the city assessor, and Mr. Pollock. Ten men are at work on the measurement of buildings.



Courtesy, Haverhill (Mass.) Gazette.
NEW CHIEF'S CAR.

Commission Loses in Bristol, Va.

Bristol, Va.—Winning on the votes cast, but losing on that section of the statute which requires a majority of the qualified votes to be cast in its favor, modified commission form of government for Bristol, Va., was defeated. There were 255 votes for the change and 220 against it. There are 671 qualified voters and 336 votes were needed to carry the election. There were 497 votes cast, 22 being thrown out. Fist fights and other disturbances marked election day. Bristol, Tenn., is under commission form.

Woman in Los Angeles Council.

Los Angeles, Cal.—In the recent city elections one of the surprises was the election of Mrs. Estelle Lawton Lindsey to the city council. It is claimed that she is the first woman to be elected to such a place in a city the size of Los Angeles. The firemen's two-platoon system was approved. The proposed ordinance initiated by the jitney men to relieve them of indemnity bonds and to cut license fees, was defeated. Police Chief Sebastian, who had just been exonerated on charges of immorality, was elected mayor by a slight majority.

A New City Manager.

Bakersfield, Cal.—The new city manager form of government, which is provided in the new charter granted by the recent legislature, is now in full effect here. Wallace M. Morgan, for many years editor of the Bakersfield Echo, has qualified as the first city manager appointed by a new council.

Pennsylvania Municipal Legislation.

Harrisburg, Pa.—Among the bills just signed by Governor Brumbaugh are the following dealing with municipal affairs:

Authorizing the city of Philadelphia to sell bonds to sinking fund commissioners without advertisement.

Authorizing the Philadelphia city park commission to purchase property for park additions and repealing prohibition of purchase of more than 1,000 acres.

Making offices of councilman and school director incompatible.

Validating annexations and extensions of boroughs prior to April 22, 1903, where certain procedure had not been complied with.

Validating municipal liens for borough sewer systems, and allowing passage of ordinances changing route of sewer from that originally proposed.

Amending laws relative to street improvements by providing procedure for placing of foot walks, curb, parking, shade trees and grass plots.

Providing a code for reporting quarantining and controlling contagious and infectious diseases. The act covers numerous diseases and establishes various quarantine periods for diseases, as well as requiring immediate reports.

Requiring second-class cities to establish pension funds for employees and regulating administration thereof.

RAPID TRANSIT

Great Strike in Chicago.

Chicago, Ill.—A complete tie-up of the surface and elevated railway lines in this city was caused by the strike for higher wages of 14,000 employees. More than 1,300 miles of track are operated by the companies which are affected by the labor trouble. More than half a million persons went to their work in automobiles and returned home in them. The day following the strike the steam railroads handled hundreds of thousands of passengers. Jitney buses by the thousand were used. There is no sign of weakening either on the part of the traction companies or the men. Strikebreakers are being brought from all parts of the country by labor contractors. There has been a small defection from the unions. Despite the lack of any violence Chief of Police Healey has asked authority to enroll 1,000 extra policemen to be available in event of disorder when the companies make a real effort to operate. The school system was thrown into disorder by the strike. The council is considering measures of relief.

To Probe Interurban.

Gary, Ind.—With interest on its bonds unpaid for a year and facing bankruptcy after the first of July, representatives of the Gary & Interurban and of its bondholders have appealed to the council to eliminate the three-cent fare clause in the franchise which must be enforced soon if it remains there. In addition to the elimination of the three-cent fare clause the road asks the right to charge straight five cents at all hours of the day and a ten-cent fare after twelve o'clock at night. It also asks several minor changes in the general franchise and asks that they be made at once in order that the road may borrow the money necessary to avert impending disaster. How the Gary & Interurban was organized, how the money was expended and where the earnings of the past six years have gone will be probed by a committee of the council as the result of the petition.

The Jitney in New York State.

Albany, N. Y.—New York state's first law regulating jitney busses has become operative after Governor Whitman signed the Thompson bill placing them under the jurisdiction of public service commissions and municipal authorities. At a recent hearing on the measure, jitney owners told the governor his approval of the bill would drive them out of business, as it was worded so that it would require each one to file a \$50,000 bond. The governor then announced that if he found this assertion well founded he would veto the measure. In a statement accompanying his approval he did not comment on the bond question. He merely said the state had been committed to a policy of regulating common carriers when the public service commissions law was enacted, in 1907, and he placed jitneys in the common carrier classification. Several points regarding the new motor bus law have been settled by the public service commission of the second district in response to requests from all parts of the state as to the effect of the act. The law in force two years is repealed. It becomes necessary for all persons and corporations owning or operating stage routes, bus lines or motor vehicles carrying passengers for a fare of 15 cents or less upon the streets of any city, excepting the city of New York, first to procure the consent of the local authorities and next to obtain a certificate of convenience from the public service commission. Outside of cities, no jurisdiction is attempted for the use of state highways. Under this interpretation of the law, it is claimed, local ordinances are not necessary, as each application for consent to operate may be acted upon.

Schenectady, N. Y.—Following the signing of the Thompson bill, Commissioner of Public Safety W. W. Wemple ordered all jitneys off the streets of the city until the law was complied with. It appeared that the jitney owners, of whom there are about fifty, would wait until the council had passed an ordinance. The jitney owners soon rebelled and wholesale arrests followed. However, the Schenectady Autobus Association finally decided to operate their vehicles by "contributions"—not charging any fare but collecting when the passengers were willing to contribute. It is claimed that 90 per cent of the passengers contributed, and in this way the law was successfully evaded.

MISCELLANEOUS

Municipal Dock Opened.

Portland, Ore.—With elaborate ceremonies the second unit of Portland's system of municipal docks was dedicated by officials, citizens and civic bodies. Following the formal ceremonies, a practical demonstration of the operation of the automatic sprinkler system installed throughout the building was given. The new dock is 526 feet long and 122 feet deep and contains two decks. It is of the slow-burning type of mill construction with concrete floors and cost complete with equipment \$255,000. Guthrie, McDougall & Co. were the contractors. It is capable of handling 7,000 tons cargo and can accommodate one of the largest ocean-going vessels entering the harbor, or two smaller coastwise vessels. Portland now has 1,481 feet of public docks of the very best type with a combined ton-

nage of 17,000 tons. Municipal dock No. 1 was completed nearly a year ago at a cost of \$550,000, and in connection with it a warehouse was constructed with a capacity of 3,000 tons. Another warehouse with a tonnage of 4,000 tons soon will be erected at the rear of this dock. The dock is 955 feet long and 120 feet wide, and 300 feet of the frontage contains a double deck. In addition to the dock there is one slip and open dock which can accommodate ships of a length of 450 feet. This open dock is equipped with two railroad tracks and the dock commission contemplates installing a 20-ton locomotive crane for handling heavy cargo. Altogether the public dock and warehouse facilities of Portland are of nearly 25,000 tons, and can accommodate four of the largest sea-going vessels entering the local harbor or from six to eight smaller coastwise schooners.

Brooklyn's Marginal Railroad.

Brooklyn, N. Y.—Dismissing the objections to the Cullen Marginal Terminal Railway bill as "not germane," and asserting that "as the city should not be prevented from securing the benefit it claims will be obtained," Governor Whitman at Albany signed the measure which will permit the city to go ahead with the comprehensive plan already laid out for the development of the Brooklyn and Queens water front. In brief it amends the Cullen act of 1911 by permitting trunk line railroads, under restrictions, to own stocks and bonds or other evidence of indebtedness of an operating company which may contract with the city upon terms satisfactory to the Board of Estimate, for the operating of a terminal railroad along the water front of Brooklyn and Queens. The governor called specific attention to the fact that the bill was merely permissive and pointed out that the Board of Estimate would in the last analysis be responsible for the "proper, efficient and satisfactory construction, equipment and operation of these terminal facilities" made possible under the new law.

City Planning for Ohio.

Columbus, O.—The city planning bill has been passed by both the house and senate of the general assembly. The new bill creates a planning commission as a part of the city administration in any municipality in Ohio. Such an organization is made a part of the city administration, with power to really do something. According to the new measure, two members of this commission will be appointed by the city and will be paid salaries. The other members will be appointed to represent the various civic organizations of the city.

Norfolk to Be Surveyed.

Norfolk, Va.—Municipal departments of Norfolk will be inspected by the Bureau of Municipal Research of New York, following the appropriation of \$3,000 by the aldermen. The preliminary survey is to begin shortly.

Acquisition of Land by Cities.

Boston, Mass.—Governor Walsh has signed the bill providing for the acquisition of land by cities. Under the new law a city by vote of its council and with the approval of the mayor, and towns by a vote of the town-meeting, may acquire land for municipal purposes and in case the price asked exceeds the assessed valuation by more than 25 per cent., the city may take the land by right of eminent domain without going to the legislature. The owner of property still has recourse to the courts.

Employment Bureaus for California Cities.

Sacramento, Cal.—Free employment bureaus in the cities of Sacramento, Stockton, San Francisco, Oakland and Fresno, San Diego and Los Angeles are assured, Governor Hiram W. Johnson having signed Assemblyman Ferguson's bill providing for the appropriation of \$100,000 to be used by the commissioner of the bureau of labor statistics in establishing a system to meet the unemployed problem in California. The bill was in response to one of the five recommendations made by Governor Johnson in his message to the legislature.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Contracts—Forfeiture—Breach by Other Party—Excuse.
City of New York v. Third National Bank of Jersey City.—The fact that the statutes regulating the payment of money by the city were such that the payments could not be made within the time called for by the contract, while it might relieve the city from liability for damages for the delay, does not excuse its breach, so as to entitle it to enforce the forfeiture provision against the contractor.—Circuit Court of Appeals, Second Circuit, 221 F. R., 175.

Use of Streets—Evidence—Negligence.

Meyers v. Barrett.—Under a complaint, in an action for negligent driving in the public streets of a city causing injury to a pedestrian, alleging generally negligent and reckless driving, any evidence of negligent and reckless driving is admissible, and ordinances regulating use of streets and speed of vehicles are admissible, though not pleaded, together with evidence of their breach by defendant.—Supreme Court, Appellate Division, First Department, 152 N. Y. S., 921.

Defective Streets—Personal Injuries—Instructions.

McNulty v. City of Philadelphia.—In an action for the death of an automobile passenger from a defect in a public street, the court did not err in affirming the point that "no matter how * * defective * * * the street * * * was, nevertheless, if" the "deceased did anything * * * that contributed toward the accident, your verdict must be for the defendant," with the comment that "it makes it necessary for you to * * * sift evidence to ascertain whether * * * the evidence shows that [the deceased] * * * had anything to do with causing the accident."—Supreme Court of Pennsylvania, 93 A. R., 953.

Performance of Private Function—Operation of Electric Plant—Liability for Negligence.

Saulman v. Mayor and City Council of Nashville.—A city, owning and operating an electric plant, as authorized by Acts 1891, C. 207, and Acts 1901, C. 11, though only to light its streets and municipal buildings, is engaging in performing a private function, and hence the rule of respondent superior applies to it, so as to render it liable for negligent construction and maintenance of a heavily charged wire, which by coming in contact with a guy wire attached to a telephone pole caused the death of a lineman employed by the telephone company.—Supreme Court of Tennessee, 175 S. W. R., 532.

Streets—Duty to Keep in Repair.

Rogers v. City of Coffeyville et al.—In executing a contract with a city to lay a water main, a construction company made an excavation in a street, which was not properly lighted or guarded at night, in consequence of which a pedestrian was injured. Held, the duty of the city to keep the street reasonably safe for travel was primary and independent of that of the construction company, its liability did not depend on the doctrine of respondent superior, and a verdict in favor of the construction company did not impair the effect of a verdict against the city returned by the same jury.—Supreme Court of Kansas, 147 P. R., 816.

Public Improvements—Street Work—Bonds—Statute—Validity.

Schaffer v. Smith, City Treasurer.—A resolution of a board of trustees of a city initiating certain street improvements, to cover the assessment for which bonds and securities were issued by the municipality under St. 1893, p. 33, providing for a system of street improvement bonds to represent assessments for street improvements within municipalities, was proper, although posted and published without having thereon the city clerk's certificate to its passage, which the clerk did not sign until after the posting and publication; the certificate being merely evidence on the minutes of the board of the fact that the resolution was passed.—Supreme Court of California, 147 P. R., 976.

Actions by Taxpayers—Right to Maintain.

Rice v. City of Indianapolis et al.—A taxpayer suing to restrain a city and a light company from carrying out a contract for public lighting has no interest in the contract except in so far as its performance will affect the treasury of the city, and, where he fails to show that any of the public funds are in danger of being illegally dissipated, he fails to state a cause of action.—Supreme Court of Indiana, 108 N. E. R., 584.

Special Improvements—Property Assessable—"Block."

Atchison, T. & S. F. Ry. Co. v. City of Chanute et al.—Where parts of streets in the heart of a city are missing on account of the existence of railroad tracks and rights of way, it is proper for the city, for the assessment of special improvements, to consider that a city block covers the smallest unit of city property which is actually surrounded by streets, and to extend the special assessment to the center of such block, even though such assessment may thereby cover the railway property within such block.—Supreme Court of Kansas, 147 P. R., 836.

Injuries in Streets—Contributory Negligence.

Ludke v. Burck.—While a violation of St. 1913, § 1636—49, prescribing a speed limit of 15 miles per hour for automobiles on city streets, is negligence *per se*, yet as the statute merely regulates traffic and the operation of motor vehicles, which is lawful, the contributory negligence of one injured by a car being operated in excess of 15 miles an hour may be a bar to recovery.—Supreme Court of Wisconsin, 152 N. W. R., 190.

Power of Municipality—Telephone System.

Sprangler v. City of Mitchell.—Laws 1907, c. 88, authorizing cities to acquire, construct, equip and operate a telephone system is not in violation of Const. Art. 13, §1, declaring that neither the state nor any county or municipality shall loan its credit, make donations in the aid of individual corporations, or become the owner of the capital stock of any such corporation, nor shall the state engage in any work of internal improvement; for the Constitution merely prohibits cities from becoming interested in public utilities owned by private persons.—Supreme Court of So. Dakota, 152 N. W. R., 339.

Officers—Salary—Right in General.

People ex rel. Dinneen v. Bradford, Mayor, et al.—The right to the salary is attached to and follows the legal title to the office, irrespective of the question as to who actually performs the services, even if performed by an intruder, and extends to cases of protracted absence and non-performance of duties, and to actual suspension from office; and this is true in respect to a *de facto* officer.—Supreme Court of Illinois, 108 N. E. R., 732.

Change of Street Grade—Diversion of Water—Liability for Damages.

City of Clarksville v. McMillan.—Where a city lawfully raises the grade of one of its streets, if the grading is executed in such manner as to obstruct or divert the flow of rainwater, so that it would empty on an adjacent proprietor's land to such an extent as to cause injury thereto, the diversion of the water with such result would give rise to a cause of action. *Louisville & Nashville R. R. Co. v. Jackson*, 139 Ga. 543 (4), 544, 77 S. E. 796; *Nelson v. City of Atlanta*, 138 Ga. 252, 75 S. E. 245, and citations.—Supreme Court of Georgia, 85 S. E. R., 110.

Obstructions on Streets—Injuries to Pedestrians—Liability.

Evans v. City of Des Moines.—A city is not negligent in permitting an obstruction in a street unless it was responsible for the obstruction in the first instance, or failed to remove the same with reasonable diligence after discovery, or reasonable time for discovery, and is not an insurer of the safety of its streets, and mere proof that a barrel stave was in a street, and that a policeman in kicking it injured a person standing on the curb, waiting for an approaching procession, unaccompanied by proof of the length of time the stave had been in the street, did not show actionable negligence in permitting the obstruction.—Supreme Court of Iowa, 151 N. W. R., 397.

NEWS OF THE SOCIETIES

Calendar of Meetings.

June 16-19.

TRI-STATE WATER AND LIGHT ASSOCIATION of the Carolinas and Georgia.—Annual Convention, Asheville, N. C. President, F. C. Wyse, Columbia, S. C. Convention Manager, W. F. Stieglitz, Columbia, S. C. June 22.

MEAYORS' ASSOCIATION OF CONNECTICUT.—Bridgeport, Conn. June 22-25.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Annual Spring Meeting, Hotel Statler, Buffalo, N. Y. Secretary, 29 West 39th street, New York City.

June 22-25.

SOCIETY FOR THE PROMOTION OF ENGINEERING EDUCATION.—Annual Meeting, Iowa State College, Ames, Ia. Secretary, F. S. Bishop, Univ. of Pittsburgh, Pittsburgh, Pa.

June 22-26.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Annual Meeting, Atlantic City, N. J. Secretary, Edgar Marburg, Univ. of Pennsylvania, Philadelphia, Pa. June 25-July 1.

THE COUNTY COUNCILS ASSOCIATION (Great Britain).—National Road Conference and Exhibition, London, England. Business Manager, A. F. May, 13 Victoria Street, Westminster, S. W., London, England.

Aug. 2-6.

GOOD ROADS CONGRESS.—San Francisco, Cal., under the auspices of the Tri-State Good Roads Association.

Aug. 4-5.

TEXAS GOOD ROADS ASSOCIATION AND COUNTY JUDGES' AND COMMISSIONERS' ASSOCIATION.—Midsummer meeting, Agricultural and Mechanical College of Texas, College Stat., Tex. Secretary, Texas Good Roads Assoc., D. E. Colp, San Antonio.

Aug. 31-Sept. 3.

INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS.—Annual Convention, Cincinnati, O. Sept. 13-19.

PAN-AMERICAN ROAD CONGRESS.—Held by American Road Builders' Association and the American Highway Association, Oakland, Cal.

Sept. 16-18.

AMERICAN ELECTROCHEMICAL SOCIETY.—Twenty-eighth annual general meeting, San Francisco. J. M. Muir, 239 West 39th street, New York City, Chairman of Transportation Committee.

September 16-25.

INTERNATIONAL ENGINEERING CONGRESS.—Am. Soc. C. E., Am. Inst. Min. E., Am. Soc. Mech. E., Am. Inst. E. E. and Soc. N. A. & M. E., San Francisco, Cal. Secretary, W. A. Catell, Foxcroft Building, San Francisco, Cal.

Sept. 22-24.

MASSACHUSETTS STATE FIREFMEN'S ASSOCIATION.—Annual convention, Haverhill, Mass. George Wilson, Lynn, Mass., Chairman of Committee.

Oct. 11-15.

NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.—Annual Convention, Dayton, O. Secretary, Will P. Blair, B. of L. E. Bidg., Cleveland, O.

October 12-15.

AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Annual Convention, Dayton, O. Secretary, Charles Carroll Brown, 702 Wulsln Bldg., Indianapolis, Ind.

November 17-19.

NATIONAL MUNICIPAL LEAGUE.—Annual Convention, Dayton, O. Secretary, Clinton Rogers Woodruff, 705 North American Bldg., Philadelphia, Pa.

Dec. 27-Jan. 8, 1916.

SECOND PAN-AMERICAN SCIENTIFIC CONGRESS.—Washington, D. C. Department of State, Washington.

International Association of Chiefs of Police.

The twenty-second annual convention of the International Association of Chiefs of Police was held in Cincinnati, O., May 25-27. At the same time the conventions of the International Sheriffs' Association and the International Railway Special Agents and Police opened.

The three associations held a joint meeting in the convention hall of the Sinton Hotel. Mayor Spiegel, Safety

Director Holmes, President Powell of Change, and Chief Copelan welcomed the visiting chiefs, sheriffs and railway agents. Major Richard Sylvester, president of the Police Chiefs' Association, responded on behalf of the three associations. The meeting then adjourned until afternoon, when the business of the session was taken up.

One of the first communications read at the business session was from Mrs. Alice S. Wells, Los Angeles, Cal., policewoman. She said she had organized an association of policewomen in the United States and asked to be affiliated with the police chiefs' association. The communication was laid on the table without any action being taken.

At 7 o'clock Tuesday evening the chiefs held another short business session, when Chief Robert D. Carter of Baltimore, Md., delivered a short address on the "Police and Press." Chief Peterson of Oakland, Cal., a member of the legislation committee, reported on recent laws affecting the police, explained pension laws passed in several states, and their relation to similar laws in other states.

On the forenoon of the second day the three associations held a joint meeting, but in the afternoon took and automobile trip around the city. The following committees were appointed by President Eckhardt of the Sheriffs' Association: Resolutions—J. W. Dreger, chairman, Minnesota; H. W. Sweptson, Ohio; J. L. Wilson, Illinois; L. G. Calder, Canada, and W. J. Cummings, Kansas, Federation H. G. Calder, Canada, chairman; W. A. Gruber, Minnesota, and C. G. Earnest, Iowa. Auditing—C. G. Earnest, chairman; B. B. Wilcox, Minnesota; C. E. Rothenhoefer, California; Paul Watts, Tennessee; W. H. Walter, Kentucky. Recommendations—L. G. Calder, chairman; W. J. Cummings, C. P. Sebring, New Jersey; J. R. Butter, Kentucky, and C. A. Tobie, Illinois. Obituary—W. A. Groneweg, Iowa, chairman; A. D. Irey, Illinois; C. G. Earnest, George Schott, Cincinnati, and C. P. Sebring.

Newark, N. J., was selected as the place for the 1916 convention and Michael Regan, chief of police of Newark, was elected president of the police chiefs, to succeed Major Richard Sylvester, of Washington, D. C.

Other officers elected were: W. J. Peterson, Oakland, Cal., first vice-president; H. W. Hammil, Kansas City, second vice-president; Patrick Kiely, Plainfield, N. J., third vice-president; Colonel William Copelan, Cincinnati, fourth vice-president; Colonel A. P. Sherwood, chief constable of the Dominion of Canada, fifth vice-president; Charles Kizer of Norfolk, Va., secretary; Frederick Roach, Jacksonville, Fla., treasurer, and Lona Day, Scranton, Pa., sergeant-at-arms.

New Jersey Conference on Housing.

The third annual conference on housing in New Jersey under the auspices of the New Jersey Housing Association and the National Housing Association, co-operating with the Passaic Board of Trade, was held in Passaic, May 27, 28 and 29. About 200 delegates were present. The first session began 10 a. m., Thursday morning, under the chairmanship of W. L. Kinhead, president of the New Jersey Housing Association. Mayor George N. Seger made an address of welcome, to which Chairman Kinhead replied. The principal speaker of the morning session was Mrs. Albion Fellows Bacon, who is well known in housing work, being secretary of the Indiana Housing Association and director of the national association. Mrs. Bacon gave a general survey of the many problems involved in housing in a very human way. Dr. Margaret N. Sullivan, president of the Child Welfare Association of Jersey City, described her experiences with children in relation to housing. Ernest D. Easton, secretary of the Anti-Tuberculosis Society of Newark, stressed the vital "Relation of Housing and Tuberculosis." "Relation of Housing to Crime and Delinquency" was discussed with convincing illustrations from experience by Judge Patrick J. Dolan, of the Newark Juvenile Court. Charles F. H. Johnson, president of the Board of Trade, followed with a speech on "Relation of Housing to Real Estate Improvement." The Rev. Augustine Elmendorf, executive secretary of the Commission on Social Service of the Episcopal Diocese of Newark, presented his views on "Relation of Housing to Religion." Before adjournment, a committee nominated five directors who are to serve for the next three years: Mrs. William T. Ropes, Montclair; Miles W. Beemer, Jersey City; Richard Stevens, Hoboken; Miss Harriet Townsend, Elizabeth, and the Rev. Augustine Elmendorf, Newark. In the afternoon the delegates reported on various phases of housing progress in the state, following a luncheon. The delegates then studied conditions in different sections of the city from automobiles.

Following a supper the next evening, the second session of the conference was held at the Smith Academy. At this meeting John Ihlder, of New York, field secretary of the National Housing Association, presented the "Passaic Housing Survey" which was prepared by Miss Udetta D. Brown, of New York. Former Governor of New Jersey Edward C. Stokes delivered an interesting address. Miles W. Beemer, a state Tenement House Commissioner, and president of the People's Legislative Bureau in Newark, spoke on "Housing Legislation in New Jersey" and described the difficulties and triumphs of the commission's work. Captain Charles J. Allen, secretary and director of the State Board of Tenement House Supervision, talked very pointedly of his twelve years' experi-

ence with the administration of the tenement house laws of the state. Phillip Morris, city sanitarian of Passaic, made a final address on the question of housing legislation. "Housing Conditions in New Jersey" was the subject of an interesting twenty-minute paper, which was illustrated, by W. Lane Shannon, of Camden, secretary of the New Jersey State Housing Association.

Captain Charles J. Allen was chairman of the final session, Saturday afternoon. Bernard J. Newman, executive secretary of the Philadelphia branch, presented the chief paper, a thirty-minute one, on "Housing Betterment," in which he urged wider use of the building loan organization and a tax system which was not guess work, as at present. R. G. McKelgrish read a paper by George B. Ford, of New York, dealing with the planning of building districts. Miss Madge D. Headley, secretary of the tenement house commission of the New York Charity Organization Society, spoke on "The Housing Survey, a Program and Guide for Housing Improvement." "Wages and the Cost of the Home" was the theme of Dr. Carol Aronovici, of Philadelphia. John Ihlder talked on "Financing Workingmen's Homes." Miss Helen L. Parish, secretary of the Octavia Hill Association, spoke on the "Management of Houses." The final speaker was Dr. William C. Woodward, health officer of the District of Columbia, who discussed the relation of the medical profession to housing problems.

National Paving Brick Manufacturers' Association.

The Board of Directors of the National Paving Brick Manufacturers' Association at their quarterly meeting held in Cleveland May 27, affirmed arrangements tentatively made for holding its annual meeting October 11-12 at Dayton, Ohio. During this week, namely October 12, 13, 14, will be held the annual meeting of the American Society of Municipal Improvements. This arrangement will not only enable the members of the National Paving Brick Manufacturers' Association to attend the meeting of the American Society, but it will also give the engineers of Ohio, Indiana and Kentucky and other states who have not heretofore been members of the American Society of Municipal Improvements an opportunity to attend that meeting and become enlisted in its roll of membership.

Arizona Good Roads Association.

The annual conference of the Arizona Good Roads Association was held at Tucson, May 15. The mayor made a welcoming speech to which Dwight B. Heard, president of the association, responded. Several papers were presented: "The Best Method of Securing Co-operation Between Counties," John Mets, Tucson; Hon. Lamar Cobb, state engineer, "Permanent and Temporary Work on Roads." A discussion by county engineers with five minutes to each engineer. Types of road construction. Lecture by Geo. D. Marshall, U. S. Department of Agriculture,

expert on road building; special types of roads. Gov. Hunt was also a speaker.

A resolution asking the legislature to appropriate \$400,000 annually for roads, exclusive of special road appropriations was adopted. Another resolution requests the war department to construct roads through the military and Indian reservations.

Southwestern Electrical and Gas Association.

The annual meeting of the Southwestern Electrical and Gas Association was held at Galveston, Tex., May 19-22. The new officers are: David Daly, Houston, president; F. R. Slater, Dallas, first vice-president; H. C. Morris, Dallas, second vice-president; Dan A. Hegarty, Houston, third vice-president; J. B. Walker and H. S. Cooper, both of Dallas, treasurer and secretary respectively (both re-elected). It was voted to abolish, effective Sept. 1, the permanent office of salaried secretary. Authority was given for the appointment of a committee on public relations.

The study of the jitney bus was taken up on the afternoon of the first day by R. T. Sullivan, general superintendent of the Houston Electric Company. After the first day there were separate meetings of the electrical and of the gas men.

Southeastern Sanitary Association.

The annual convention of the Southeastern Sanitary Association was held at Asheville, N. C., May 26-27. After going on record as opposing the use of common drinking cups at soda fountains and recommending the use of individual cups instead, the following officers were elected to serve during the coming year: President, Dr. C. W. Coker, of Hartsville, S. C.; secretary and treasurer, Dr. Clarence E. Smith of Greenville, S. C.; vice-presidents who also constitute the executive committee, V. V. Kelsey, of Erwin, Tenn.; A. V. Woods, of Brunswick, Ga.; E. N. Williams of Richmond, Va.; J. A. Hayne of Columbia, S. C., and Henry Hanson of Jacksonville, Fla.

South Carolina State Firemen's Association.

The eleventh annual convention of the South Carolina Firemen's Association was held at Greenwood, May 18-20 with several hundred firemen present. A feature of the convention was the numerous contests between picked teams of firemen representing the various cities.

The association decided to hold its next meeting at Orangeburg. The following officers were elected: President, Louis Behrens, of Charleston; first vice-president, O. K. Laroque, of Marion; second vice-president, H. G. Wells, of Newberry; treasurer, T. O. Flowers, of Rock Hill; secretary, H. S. Hood, of Sumter.

Dayton Engineering Club.

City Manager Waite was elected vice president of the Dayton Engineering club June 1 at the annual meeting and banquet of that organization to succeed F. M. Tait, who will go to New

York City. E. A. Deeds was re-elected president; Orville Wright, first vice-president; F. O. Clements, treasurer, and D. A. Kohr, secretary.

Conference of Mayors.

About twenty mayors of cities along the Mississippi, Illinois and Ohio rivers, and presidents or secretaries of commercial organizations, met in St. Louis at the American Hotel May 31 on call of former Gov. A. O. Eberhart of Minnesota to discuss plans for a permanent organization to promote the building of river terminals, and provide for river traffic.

The representatives were from Illinois, Indiana, Iowa, Minnesota, Wisconsin, Nebraska, Arkansas, Tennessee and Missouri.

Among the speakers was C. F. McFarland of Keokuk, Ia. He spoke of the cost of building river terminals in the smaller cities which, he said, would be great, but that the money could be raised by tax levy, and in increased prosperity the terminals would more than pay for themselves.

Irving Norwood of Davenport, Ia., said his city has provided itself with inadequate terminals, but that this is a hopeful sign. He declared the best news he had heard in a long time is the voting by the Illinois legislature of \$5,000,000 for improvement of the Illinois River.

C. W. Perry, secretary of the Quincy, Ill., chamber of commerce, urged the formation of a publicity committee to get the matter before the public. He said tentative plans for construction of \$75,000 docks at Quincy have been passed upon, and if accepted, will be financed with a bond issue.

Mayor Mollman of East St. Louis said he was not proud of the record of the East Side as far as commercial utilities along the river front is concerned, but that the city had long been engaged in protecting itself from floods and overflows and as soon as this is accomplished will turn its attention to the commercial value of its river front.

J. A. Hooke, director of public utilities of St. Louis, said the matter of adequate docks and river terminals for this city has been considered, but at this time the city has not sufficient money to meet the many demands on it. He spoke hopefully of the success of a bond issue, in several years from now, to float the river terminal proposition.

New York Fire Chiefs.

The annual convention of the New York State Association of Fire Chiefs, of which Chief William W. Bridgeford of Peekskill is president, will be held in that city June 23 and 24.

Municipal Engineers of City of New York.

The Municipal Engineers and the Brooklyn Engineer's Club together Saturday, June 5, made a trip through the studios and factories of the Vitagraph company. On Wednesday, June 9, a social evening was held at the Engineering Societies Buildings

at which W. J. Hammer, lecturer for the Wright Brothers, will give an address on "Aeroplanes and Airships."

Natural Gas Association of America.

The annual convention of the Natural Gas Association of America was held at Cincinnati, O., May 19-20. Pittsburgh, Pa., was chosen as the place for the next convention and the following officers were elected: President, W. V. Cartwright, Cincinnati; vice-president, Joseph F. Guffey, Pittsburgh; Secretary-treasurer, Thomas C. Jones, Delaware, O.; directors, J. R. Munce, Charlestown, W. Va.; K. C. Krick, Columbus, O.; J. B. Crawford, Oil City, Pa.; A. G. Curtis, Shreveport, La.; H. J. Hoover, Cincinnati, and V. L. Elbert, St. Joseph, Mo.

California Supervisor's Association.

At the fifth annual convention held at San Diego, May 19-20, the following officers were elected: W. A. Russell, president; F. F. Hearst, vice-president; John Roll, treasurer; J. T. Butler, secretary.

Dredge Owners' Protective Association.

At the annual meeting held at New York, May 20, the following officers were elected:

Frank A. Furst of Baltimore, chairman of the association; R. B. Ennis of Baltimore, secretary, and J. McMullen of New York, treasurer. The executive committee consists of Frank A. Furst, John H. Garrish of Boston, J. McMullen, P. Sanford Ross, of New York, W. J. Bradley of Philadelphia, O. F. Smith of Norfolk, Va., and W. W. Duffett of Boston.

Indiana Health Officers' Conference.

The twenty-first annual conference of health officers of Indiana was held at Indianapolis under the auspices of the State Board of Health, June 1-3.

W. A. Thompson, health commissioner of Union county, who has attracted wide attention in the state because of his idea of a county health book, spoke on "Union County's Health Book and What It Has Accomplished." Porter Linthium, health officer of Evansville, spoke on "The Need of Medical School Inspection and Laboratories in Cities."

Tuesday afternoon George R. Osborn, health commissioner of Laporte county, spoke on "Public Health and Hygiene in Our Public Schools;" J. B. Pearcy, state high school inspector, "Some Indiana Schoolhouses." A conference followed this address, at which H. E. Barnard, state food and drug commissioner; W. D. Thurber, a new agent of the state board of health; Dr. Hurty and Dr. W. F. King, the latter assistant secretary to the state board of health, spoke on "Pure Food and Drug Laws"; "Tuberculosis Law of 1915," "New Legislation," and other topics.

Third session Wednesday morning, Dr. Burton D. Myers of the medical department of Indiana university, "The Kallikak Family"; Richard M. Milburn, attorney-general, "Our Insanity Laws"; Dr. M. N. Hadley, pro-

fessor of clinical surgery, Indiana university, "The Prevention of Cancer."

Mayor's Club.

The Mayor's Club of Massachusetts visited Springfield, Mass., June 2. There was a reception and luncheon at noon. In the afternoon an automobile tour of the city was made, including visits to public buildings, parks, residential section and all points of interest in Springfield. A banquet was served at 5 o'clock in the afternoon. As the association of highway superintendents held a meeting in Springfield on June 2 and 3, at the request of Mayor Stacy many of the Mayors' Club stayed over night as he had planned for June 3 a demonstration of all kinds of highway construction which was very interesting and instructive.

Southern Gas Association.

The seventh annual convention of the Southern Gas Association was held at Charleston, S. C., June 1-4. McD. Dexter, of Columbus, Ga., was elected president; Roscoe Nettles, Tampa, Fla., first vice-president; C. W. Benedict, Charleston, S. C., second vice-president; E. D. Brewer, Atlanta, secretary and treasurer.

The board of directors, elected for the next two years, was as follows: F. L. Marshall, of Augusta; M. M. Milton, of Roanoke; L. E. Montgomery, of Birmingham, and R. B. Coombs, of Nashville.

The 1916 convention of the association will meet in Tampa April 19, and will remain in session for three days, according to a decision by the committee on time and place.

Among the interesting and important papers presented at the convention were: "The Future of Gas Lighting," by E. D. Brewer, of Atlanta; "The Distillation of Water," Garnett W. McKee, of Rockford, Ill.; "The Automatic Operation of Water Gas Sets," by C. F. Zeek, superintendent Pensacola Gas Co.; "The Use of the Prepayment Meter in the South," by M. A. Bowlin, commercial manager Jacksonville Gas Co.; "Municipal Lighting in the South," by Charles D. Nicaloi, of Baltimore.

PERSONALS

Carter, Edward D., has been appointed a member of the board of water commissioners of Erie, Pa.

Cromwell, George, has been appointed city engineer of San Diego, Cal.

Lindholm, Poul, engineer of highways, Copenhagen, Denmark, has been awarded the Traveling Fellowship of the American Scandinavian Foundation for 1915-1916. He will devote the year to graduate work in highway engineering at Columbia University.

Messer, Jacob C., mayor of Oak Hill, O., died at his home at that place June 1, aged 46.

Morgan, Wallace M., has taken office as the first city manager of Bakersfield, Cal.

The State Highway Department of Pennsylvania announces that Joseph W. Hunter, first deputy state highway commissioner, has been reappointed, and that George H. Biles, engineer of maintenance, had been promoted to the position of second deputy state highway commissioner made vacant by the resignation of E. A. Jones. Mr. Biles will continue as second deputy commissioner in charge of the maintenance division, and no appointment will be made to fill the vacancy caused by his promotion.

Following officers have been elected: Follansbee, W. Va.—Benjamin Williams, mayor; solicitor, R. L. Ramsey; chief of police, Addison Barnes; clerk, William Lake; collector and treasurer, A. W. May; councilmen: First ward, Arthur Watkins, four years; Alonzo Prince, two years; second ward, George Short and H. W. Brooks, four years; Clarence Barnett and A. G. Hartenstein, two years; Third ward, Charles Berry, four years; John Montgomery, two years.

Denver, Col.—Dr. W. H. Sharpley, mayor, for a term of four years.

Wilmington, Del.—Mayor, James F. Price; president of council, Henry C. Downward; city treasurer, William J. Highfield; tax collector, Northern Dist., C. S. Rice; tax collector, Southern Dist., John I. Dolan; city council, Arthur Johnson, Stant B. Atkins, John J. McGoldrick, James Kane, Oscar C. Draper, John O. Hopkins, Charles M. Smith, Burton S. Heal, George E. Grantland, John X. McDonough, Joseph L. McDermott, Albert N. Williams.

Galveston, Tex.—City secretary, Jno. D. Kelley; city attorney, Mart H. Royston; city treasurer, H. O. Stein; city auditor, Nicholas Weeks; city engineer, A. T. Dickey; city health officer, Dr. Walter Kleberg; chief of police, W. J. Sedgwick; superintendent water and sewer department, A. M. Burgess; superintendent electric light department, W. D. Masterson; chief fire department, Jno. H. Gernand; fire marshal, Theo. W. Reeves.

Westerly, R. I.—E. B. Pendleton, moderator; E. E. Whipple, town clerk; councilmen, William Culley, M. W. Flynn, F. G. Haswell, T. E. Robinson, C. G. Craig, D. F. Larkin and H. E. Thorp.

Following have been elected in Oklahoma:

Lawton—Dick Sanders, commissioner of public property; W. D. Turner, finance, and Henry Boyle, public safety.

Ardmore—L. V. Mullen, mayor; Bob Hutchins, chief of police.

Enid—J. R. Clover, mayor; commissioners, Ed. Meyers and Fred McClane; J. P. Cook re-elected city treasurer.

Durant—James Yarbrough, mayor; Vic. Phillips, city attorney; George Roberts, street commissioner; E. H. Stewart, city treasurer; B. M. Head, city clerk; Ruel Taylor, chief of police.

Oklahoma City—Ed. Overholser, mayor; J. G. Street, commissioner of public property; Mike Donnelly, commissioner of finance.

(Continued on page 858.)

NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

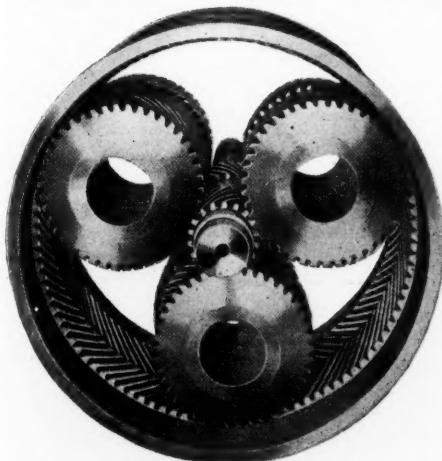
TURBO-GEAR.

A Speed Transformer of New Design.

"Turbo-Gear" is a speed transformer of rather novel design, calculated to take the place of chains, belts or common gearing and obviating their disadvantages. The new gear may be used either for speed reducing or speed increasing and will run either right or left hand, with the same efficiency. The driving and the driven shaft rotate in the same direction. The gears are being made in seven different standard speed ratios.

The Turbo-Gear consists of a large internal double helical gear, made of a special heat-treated, open-hearth steel forging. A double helical pinion, cut integral with the high-speed shaft, is made of Halcomb electric furnace chrome vanadium steel, made to proper hardness to minimize wear. The intermediate double helical gears, made of lumen manganese-bronze, are mounted on hardened and ground forged steel shafts, secured to the cast steel slow speed member by means of keys. The latter member is mounted on two heavy duty S. K. F. ball bearings, one on each side of the gears, and supported by the heavy housing. The slow speed member and shaft for intermediate gearing and the high speed shaft and pinion are independent of each other for support, each being held directly by the housing. The housing is made of tough gray cast iron, horizontally split to give accessibility.

For lubrication, the high speed shaft has a central passage through which the oil is pumped, and a continuous stream of oil is sprayed on the gears through radial passages in the pinion. The high speed bearings, besides having forced feed lubrication, are provided with oil rings. The superfluous oil from the high speed bearings is collected by a centrifugal oil ring and forced through the hollow shafts carrying the intermediate gears. The oil is

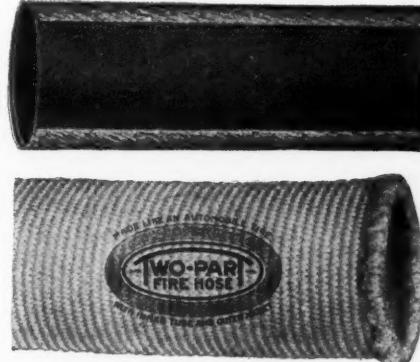


TURBO-GEAR.

then immediately drained to the main oil reservoir in the base, where it is strained, cooled, returned to the pump and used over. The gears, therefore, do not run in oil.

The gears are claimed to be made with special accuracy by special machinery. They are guaranteed for one year and to have an efficiency of not less than 95 per cent for any speed ratio listed when operating at full load.

Turbo-gears are well adapted for use with steam turbines, which must necessarily run at high speed, too high for many machines which are very suitable for this type of prime mover. In the case of electric drive it would,



TWO-PART FIRE HOSE.
Inner and Outer Tubes.

it is claimed, in many cases be economical to purchase a "high speed motor" and drive through Turbo-Gear. The gear may be similarly used in driving any high speed machine, such as centrifugal pumps with steam, gas or oil engines.

The gear, which is shown in the accompanying illustrations, is made by the Turbo-Gear Company, Industrial Building, Baltimore, Md.

"TWO-PART" FIRE HOSE.

Hose which is leaky because of cracking of the rubber lining is the cause of many fire department difficulties. The jacket of the hose may be intact but rubber may be cracked where it has been folded. These troubles are claimed to have been eliminated with "Two-Part" fire hose, which is "made like an automobile tire, with an inner tube and outer jacket." The lining is separate from the jacket and is made specially strong at either side where the bend comes by strips of rubberized duck, the spaces between giving ample elasticity to the lining. This lining is inserted in the hose jacket in the same way as an automobile inner tube, being fastened only at the couplings. The inner tube may be replaced with a new one at about half the cost of the hose or can be repaired in the same way as

an auto tire tube. The outer jacket may be similarly replaced in case of damage. On account of the pliability and softness of the "Two-Part" hose it is claimed that 20 per cent more can be carried in a wagon or car than other styles. Old hose which has been worn may be repaired by the use of the parts required at a cost about half that of replacing.

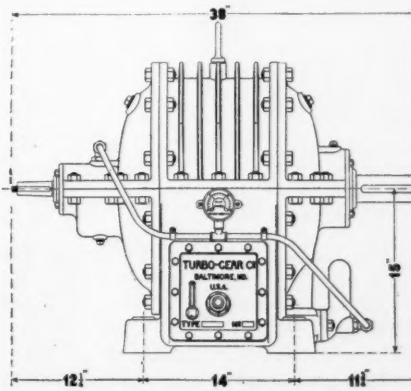
The illustration shows the two parts of the hose. "Two-Part" hose is made by the Chicago Fire Hose Co., 53 West Jackson avenue, Chicago, Ill.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago—Contracts are being closed at Berwyn, Ill., for 1,100 tons and at Area, Ill., for 300 tons. Lettings included 200 tons at Kimball, Neb., 300 tons at Sydney, Mont., and 100 tons at Westphal, Ill. Makers have enjoyed a fair run of small orders and the closing of a number of season contracts is reported. Quotations: 4-inch, \$25.50; 6 to 12-inch, \$23.50; 16-inch and up, \$23. Birmingham—The factories report a continuation of fair to satisfactory conditions, with orders in good shape and prices firm. The American Cast Iron Pipe Co. is meeting with much success in selling its 16-foot lengths all over the country. This company is adding a handsome office structure to its plant. Quotations: 4-inch, \$20; 6-inch and up, \$18. New York—There is a decided lull in municipal lettings, nothing of importance being in sight in this territory. Prices are firmly maintained. Quotations: 6-inch, Class B and heavier, \$22 to \$22.50; Class A, \$23 to \$23.50.

Lead.—Lead has continued to advance in a sensational manner and St. Louis prices are higher than those of New York. Quotations: New York, \$5.75; St. Louis, \$5.875.

The Kissel Motor Car Co., 570 Kissel avenue, Hartford, Wis., announces the recent establishment of new Kissel-Kar agencies as follows: Southern



TURBO-GEAR HOUSING.

Motor Car Company, New Orleans, La.; P. W. Mynor, Springfield, Mass.; J. D. Lapointe, Viauville, Quebec, Canada; Swanson Auto Company, Cherokee, Ia.; Pioneer Motor Company, Inc., El Paso, Tex.; C. H. Kraft, Collinsville, Ill.; S. W. Baker, Jr., Mechanicsville, N. Y.; C. R. Hendricks, Norristown, Pa.; McLean County KisselKar Sales Agency, Bloomington, Ill. Paul V. Clodio, metropolitan distributor of the KisselKar, recently said that about a hundred municipalities all over the country now have KisselKars in the service in every sort of department. Trucks are used to mount fire apparatus, to flush and to sprinkle streets, to hustle prisoners, to render first aid to the ill and injured, to pick up waste, to haul road and building material, to carry meters and supplies for the water department, to deliver books for the public library, and for about every other municipal purpose.

The Goodyear Tire & Rubber Co., Akron, O., reports another big month for May. This company is now busier than at any time in its history, and has just commenced the construction of a building that will add 37,500 square feet of floor space and permit an increase of over 2,000 tires per day in output.

The Sullivan Machinery Co., People's Gas Building, Chicago, Ill., announces that its Boston office will now be located at Room 1010, Unity Building, 185 Devonshire street, instead of 35 Federal street.

TRADE LITERATURE.

The Granite Paving Block Manufacturers' Association of the U. S. (Inc.), 54 Devonshire street, Boston, Mass., has issued an attractive booklet by Zenas W. Carter, field secretary, called "Permanent Paving." The booklet describes and illustrates the correct use of granite block as a paving material. Examples are given of this type of pavement in many cities, including New York, Lowell, Newark, Albany, Troy, Brookline and Philadelphia.

The Knox Motor Associates, Springfield, Mass., have issued a new catalogue describing the Knox Model 35 tractor. The catalogue is well printed and illustrated. The specifications are given in full, together with examples of the use of the tractor.

The Allis-Chalmers Manufacturing Co., Milwaukee, Wis., have issued a new bulletin, 1092, describing their synchronous converters. Various sizes, types and capacities of this machinery are described and illustrated in the new pamphlet.

The United States Motor Truck Co., Cincinnati, O., and Covington, Ky., has issued a new motor truck catalogue. The specifications and examples of service of various models of 2, 2½, 3 and 4-ton trucks are described and illustrated.

PERSONALS

(Continued from page 856.)

Following have been elected in Illinois:

Cornell.—Charles Carroll, mayor; aldermen, William Husted, F. L. Gardner, J. E. Shacketon.

Warren.—Mayoress, Mrs. A. R. Canfield.

Oglesby.—Archie Morrison, mayor; David Douglas, treasurer; John Corigliani, clerk; Wm. Easton, alderman, First ward; F. S. Rimley, alderman, Second ward; I. Weaver, alderman, Third ward; Ben Hays, alderman, Fourth ward.

Streator.—Mayor, Alfred White; city clerk, T. A. Ferguson; city attorney, T. G. Essington; city treasurer, George Ritenour; aldermen, First ward, Frank Marx; second ward, Samuel Myers; third ward, Aaron McCauley; fourth ward, M. J. Donohue; fifth ward, J. M. Hunter; sixth ward, Geo. Bandre; seventh ward, Stephen Scorby.

Galesburg.—Chief of the fire department, John Cater; chief of police, T. L. Mathews; superintendent of water and electric lights, John Walsh; superintendent of streets, John W. Slaven.

Sterling.—Public works, Mayor A. J. Platt; accounts and finances, Commissioner R. A. Kidder; streets and alleys, Commissioner J. E. Harmon; public health and safety, Commissioner J. P. Overholser; public ground and buildings, Commissioner Theodore Trout.

Rocky Falls.—Department of public affairs, Mayor Thome; department of accounts and finances, W. J. Cowles; department of public health and safety, Charles Gettle; department of streets and public improvements, W. H. Kadel; department of public property, R. E. Johnston.

Ottawa.—Edgar F. Bradford, department of public affairs; Chas. W. Campbell, department of accounts and finances; W. B. Palmer, department of public health and safety; A. M. Helffrich, department of streets and public improvements; P. J. Meagher, department of public property; city clerk, W. W. Curtis; city attorney, Taylor Strawn; health officer, Dr. W. A. Pike; public engineer, Geo. Farnsworth; street supervisor, Owen Fox; chief of police, George Eurich.

Buffalo—Commissioner of highways, A. C. Semple.

Lowden—Supervisor, F. G. Shadman; highway commissioners, H. J. Storeleader.

Clear Lake—Commissioner, Walter Flack.

Cotton Hill—Supervisor, C. A. Beam; commissioner of highways, Walter Garlip.

Island Grove—Commissioner of highways, William Dunlap.

Cuba—D. S. Ray, mayor; Wm. Anderson, clerk.

Canton—R. M. Kingsland, mayor.

Peru—J. J. Massieon, mayor.

Marseilles—W. H. Spicer, mayor;

Lankin, Daley, Berry and Bracken, commissioners.

Earlvile—Mayor, C. A. Frank; city treasurer, Gilbert H. Wiley; aldermen, Walter M. Pratt, Jos. Hyde and John Harkness.

Ottawa—E. F. Bradford, mayor; A. M. Helffrich, P. J. Meagher, C. W. Campbell, W. B. Palmer, commissioners.

Edwardsville—D. H. Mudge, re-elected mayor; Frank L. Nash, city clerk; Warren E. Baird, treasurer.

Alhambra—Fred Landolt, mayor; trustees: Victor Lang, August Costa, Chris. Rabbermann; Charles Wendle, city clerk.

Livingston—J. A. Hebenstreit, president of the village board.

Madison—Ferdinand A. Garesche, re-elected president; J. L. Malone, Dr. M. Hamm and W. Champion, trustees.

Wood River—President, S. A. Beach; A. K. Whitelaw, Louis Koennecker and George Thompson, members of the board.

Marine—William Bernard, re-elected president of the board of trustees; trustees: Edward Frey, J. H. Pahlmann and Clem DeTalleur.

Benbow City—Mayor A. E. Benbow, re-elected president of village board.

St. Jacob—Philip Baer, president of the village board.

New Douglas—President, Martin Grief; trustees: Walter Donaldson, F. J. Johannsotsettel, James Smith.

Collinsville—Dr. John A. Siegel, mayor; James G. Bailey, clerk; E. R. Luebbe, treasurer; Edmund T. Bardsley, city attorney; John Szillat, Charles G. Reumbler, John Vigna, Jr., Timothy Kane and R. C. DeLaney, aldermen.

United States Civil-Service Examination.

Illuminating Engineer (Male).
July 7-8, 1915.

The United States Civil Service announces an open competitive examination for illuminating engineer, for men only, on July 7 and 8, 1915, and then from the register of eligibles resulting from this examination certification will be made to fill vacancies as they may occur in this position at \$1,200 a year, in the office of the Supervising Architect, Treasury Department, Washington, D. C. Competitors will be examined in the following subjects, which will have the relative weights indicated:

Subjects.	Weights.
1. Theoretical and practical questions in electrical science (covering the subject with special reference to lighting and elevator work in public buildings)	25
2. Drawing and design (involving ability to design and draw plans, etc., for all apparatus and machinery connected with electrical work in public buildings)	40
3. Training and experience	35
Total	100

Applicants must have the equivalent of a high-school education and not less than three years' special experience as a draftsman, principally in connection with electrical work and illuminating engineering, or be technical graduates with not less than six months' experience as electrical draftsman or practical experience in the installation of electrical wiring or apparatus. A rating of at least 70 per cent in this subject is a prerequisite for consideration for this position. Persons who meet the requirements and desire this examination should at once apply for Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C.

ADVANCE CONTRACT NEWS

**ADVANCED INFORMATION
BIDS ASKED FOR**
**CONTRACTS AWARDED
ITEMIZED PRICES**

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECD UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET AND ROADS				
Minn., Staples.....	2 p.m., June 19..	Road construction	A. Anderburg, Twn. Clk.	
N. Y., Trudeau.....	8 p.m., June 19..	Grading and paving with bitu. macadam.....	C. S. Armstrong, Supt. Sanitarium	
Wis., Racine.....	10 a.m., June 19..	3,200 cu. yds. grading.....	P. H. Connolly, City Engr.	
O., Mt. Vernon	Noon, June 19..	Grading, paving, draining, curbing.....	City Engineer.	
Ill., Streator.....	2 p.m., June 19..	Graveling several miles of road.....	J. L. Perry, Town Clerk.	
Wash., Goldendale	June 19..	Constructing permanent highway	R. M. Spoon, Co. Aud.	
Ia., Sioux City.....	10 a.m., June 19..	6-in. concrete paving (2 jobs).....	Fred C. Smith, City Engineer	
Ky., Harrodsburg.....	Noon, June 20..	Five miles of turnpiking.....	Patrick O'Hearn, Attg. Comr.	
N. Y., New York.....	11 a.m., June 21..	Const. sidewalks, pavements, etc., at Hunter College.....	D. L. Curry, Chr. of Comm.	
N. J., Passaic	10:30 a.m., June 21..	Laying asphalt bound macadam.....	C. B. J. Snyder, Supt. Schl. Bldgs.	
N. Y., Albany	June 21..	Paving with redressed granite or wood blk.	Z. A. Van Houten, City Clk.	
Mo., Kansas City	7 p.m., June 21..	Constructing pavement at Beloit, Kan.	I. Wachsmann, Sec. Bd. C. & S.	
Ark., Newport	June 21..	Paving with concrete.....	Worley & Black, Engrs.	
Mass., Boston.....	Noon, June 21..	Asphalt and bitulithic pavements.....	J. R. Cox, Secy.	
Va., Front Royal.....	2 p.m., June 21..	400 sq. yds. conc. tramway & 1,300 cu. yds. grading.....	Public Works	
Mich., Bay City.....	9 a.m., June 21..	Constructing 24-ft. pavement.....	Constructing Quarterm., Remound Depot	
N. J., Elizabeth.....	8 p.m., June 21..	Grading and improving eight streets.....	E. E. Prohazka, Sec. B. P. W.	
Kan., Wellington.....	June 21..	38,000 yds. asphaltic concrete on concrete base and 20,-	Jacob L. Bauer, Twp. Engr.	
		300 ft. combined curb and gutter.....	J. W. Mavity, City Engr.	
Mo., Bethany	June 21..	11,500 yds. concrete paving and 7,500 ft. concrete curb.	J. E. McClure, City Clk.	
O., Berlin Heights.....	June 21..	Improving 3.78 miles of road.....	L. A. and A. C. Schultz,	
O., Youngstown	Noon, June 21..	Constructing cement walks, curbs and gutters.....	Engrs., Sandusky.	
Ala., Selma	June 21..	Grading, draining and graveling 13½ miles.....	Lionel Evans, Supt.	
La., Baton Rouge.....	June 21..	Laying 170,000 yds. bituminous gravel with curbs, gutters, etc.; 22,000 yds. hard surface pavement on con-	Board of Revenue.	
Tex., Clarkesville.....	June 21..	crete base.....	J. J. Mundinger, City Engr.	
		St. impts., including 13,531 sq. yds. vertical fibre brick pavements on conc. base, 1,897 sq. yds. conc. pavements,		
		7,230 sq. yds. asphalt macadam, etc.....	E. F. Petersen, Eng. Muskogee, Okla.	
Wash., Olympia.....	June 21..	Grading and graveling 3½ miles of road.....	Annie Gaston, Co. Aud.	
Wash., Seattle.....	June 21..	Constructing road	Byron Phelps, Clk. Co. Comrs.	
Minn., St. Paul.....	10:30 a.m., June 21..	Grad., curb. & improv. streets; 215 tons pitch filler.....	August Hohenstein, Pur. Agt.	
N. J., Millburn.....	8 p.m., June 21..	Grading and macadamizing six streets.....	Wm. Byrd, Chr. Twp. Comm.	
Wis., Elroy.....	8 p.m., June 21..	Macadamizing & placing concrete curbs & gutters.....	E. F. Champlin, Chr. St. Comm.	
Utah, Ogden.....	10 a.m., June 21..	2-in. asphalt on 6-in. foundation.....	City Engineer	
Ia., Mason City.....	10 a.m., June 21..	10,600 yds. asphalt or concrete pavement.....	J. H. McEwan, City Clk.	
Ia., Cedar Falls.....	7:30 p.m., June 21..	Paving 4 streets with sheet asph. & asph. concrete.....	A. B. Newman, Mayor	
Ill., Cicero.....	8 p.m., June 21..	Constructing concrete sidewalk.....	Charles Stoffel, Town Clk.	
Cal., Sacramento.....	10:30 a.m., June 22..	Paving, curbing and improving streets.....	M. J. Desmond, Clk. City Comm.	
Md., Baltimore.....	June 22..	4.12 miles state highway.....	O. E. Weller, Chr. State Rds. Comm.	
D. C., Washington....	2 p.m., June 22..	Grading and improving streets and roads.....	Chief Clk. Engr. Dept., Room 427, Dist. Bldg.	
Minn., Aitkin.....	1 p.m., June 22..	2½ miles grading.....	H. C. Beecher, Co. Aud.	
Md., Baltimore.....	Noon, June 22..	1.04 miles resurf., 2.08 miles conc. or mac. & 1 mile mac.	O. E. Weller, Chr. State Rds. Comm.	
Pa., Philadelphia.....	June 22..	Asph., granite blk., brick & mac. pav., sidewalk construc-	Bureau of Highways	
		tion & grading; total cost, \$175,000.....	C. J. Thompson, City Clk.	
Wis., New London.....	June 22..	Material for constructing 1½ mile concrete pavement.....	Bureau of Supplies & Accts.	
D. C., Washington	June 22..	90,000 lbs. asphalt paving cement.....	Navy Dept.	
Mass., Boston.....	Noon, June 22..	Laying 9,000 yds. wood block pavement.....	B. L. Beal, Sec. Boston Transit Comm.	
O., Rocky River.....	Noon, June 22..	Laying concrete walks.....	Frank Mitchell, Vil. Clk.	
O., Struthers.....	7 p.m., June 22..	Grading and macadamizing roads.....	Township Clerk	
Neb., Omaha.....	10 a.m., June 22..	Paving and curbing in various districts.....	T. J. Flynn, City Clerk	
Wash., Port Townsend.....	June 22..	Street improvement	Geo. Anderson, City Clk.	
O., Youngstown	7 p.m., June 22..	Grading and macadamizing streets.....	G. M. Montgomery, Engr.; Lowellville.	
O., Middletown	Noon, June 22..	Constructing cement walks, curbs, driveways, etc.....	City Commission.	
N. Y., Binghamton.....	June 23..	Paving avenue	Clk. Bd. Contract & Supply.	
Ky., Louisville	2 p.m., June 23..	Constructing sidewalks	Roger McGrath, Sec. B. P. W.	
O., Norwalk.....	10:30 a.m., June 23..	Constructing macadam or concrete roadway.....	C. E. Bloomer, Co. Clerk	
O., Canton	June 23..	Improving and paving several streets.....	C. E. Hieber, Clk. Dir. Pub. S.	
N. Y., Elmira	11 a.m., June 24..	15,700 yds. vitrified brick pavement.....	L. C. Andrews, City Clk.	
Cal., Upland.....	7:30 p.m., June 24..	Concrete paving with oil surface.....	C. P. Fuller, City Clerk	
N. Y., New York.....	10:30 a.m., June 24..	Paving with granite block, asph., asph. & bitu. conc.	Douglas Mathewson, Pres. Boro. Bronx	
N. J., Newark	3:15 p.m., June 24..	Grading, curbing and paving street.....	M. R. Sherrerd, Ch. Engr.	
Mich., Kalamazoo.....	Noon, June 24..	Road construction	Co. Clerk's Office, Court House	
Wis., Shawano.....	7 p.m., June 25..	9,233 sq. yds. macadam and 3,763 lin. ft. curb and gutter.....	O. C. Rollman, Co. Hwy. Comr.	
O., Cincinnati	Noon, June 25..	Road improvements	Bd. of Hamilton Co. Comrs.	
O., Wyoming	Noon, June 25..	Cement sidewalks	G. H. Eversman, Vil. Clk.	
O., Mt. Gilead.....	11 a.m., June 25..	Constructing one mile macadam road.....	C. L. Higgins, Co. Aud.	
O., Niles	Noon, June 25..	Grading, paving and curbing three streets.....	J. N. Cowdery, Dir. Pub. Ser.	
O., Youngstown	Noon, June 25..	Grading and sewerizing streets.....	H. C. Fox, Clerk	
N. J., Trenton	June 25..	Paving 6 streets with asphaltic concrete on concrete base; 4,200 ft. concrete curb	Frank Thompson, City Clk.	
O., Columbus	Noon, June 26..	Constructing 4,045 ft. road.....	F. S. Miller, Clerk.	

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Minn., Wadena.....	2 p.m., June 26.	Constructing 2½ miles turnpike.....	Eugene Boss, Co. Aud.	
Neb., Papillion.....	Noon, June 26.	Constructing conc. walks, cross walks and culverts.....	Geo. F. Oliver, Vil. Clk.	
S. D., Yankton.....	June 28.	Sidewalks on several streets.....	J. W. Summers, City Aud.	
O., Columbus.....	Noon, June 28.	Grading, draining and paving 22 streets.....	Geo. A. Borden, Dir. P. S.	
O., Toledo.....	10 a.m., June 28.	Grading, draining and macadamizing.....	Lucas Co. Bd. of Comrs.	
Ind., Portland.....	June 28.	Street improvement.....	City Clerk.	
Wis., Green Bay.....	10 a.m., June 28.	Grading, curbing & guttering several streets.....	City Clerk	
Wash., Olympia.....	June 28.	One mile of Pacific highway.....	State Highway Commission	
Wash., Everett.....	2 p.m., June 28.	Constructing permanent highways.....	County Auditor.	
Wis., Madison.....	2 p.m., June 29.	Paving with brick and improving streets.....	H. C. Buser, City Clerk	
N. Y., Scarsdale.....	June 29.	4,600 yds. pavement and 39,400 sq. ft. brick sidewalk.....	Wm. Mercer, Town Sup. Hwys.	
Utah, Salt Lake City.....	10 a.m., June 29.	Constructing, paving and sidewalk extensions.....	K. A. Scheid, City Rec.	
Ind., South Bend.....	10 a.m., June 29.	Street paving.....	Veronica C. Sweeney, Clk. of Board	
Wis., Merrill.....	4 p.m., June 29.	Vit. brick pavement on concrete base (2 jobs).....	W. J. Keyes, City Clk.	
O., Grand View H'ghts.	Noon, June 29.	Grad. & pav. with mac. & curbs, gut. & sidewalks of conc. T. G. Constable, Vil. Clk.		
O., Toledo.....	June 29.	Grad. drain. and surf. with water bound mac. or bitu. binder; also gravel road.....	County Commissioners	
O., Malvern.....	June 29.	Brick pav., 29,650 sq. yds. on natural gravel foundation, cement grout filler, 13,740 ft. conc. or stone curb, 745 ft. circular curb, 1,520 headers, 48 catch basins, 2,570 ft. 12-in. sewer.....	J. G. Murdson, Clerk	
Minn., Fairmont.....	8 p.m., June 29.	Paving and curbing streets.....	H. B. Tuttle, City Clk.	
Fla., De Land.....	June 30.	35.96 miles roadway and 17.47 miles either brick, street asph., asphalt. conc., modified asph., asphalt. mac. or shell. Saml. D. Jordan, Clk. Co. Commissioners		
Ind., Marion.....	July 1.	Street paving.....	City Clerk	
O., Portsmouth.....	July 1.	Paving with brick.....	City Clerk	
Pa., Lebanon.....	5 p.m., July 1.	Street paving, about 24,700 sq. yds.....	T. R. Crowell, City Engr.	
O., Oak Hill.....	July 1.	Curbing and paving; road construction.....	City Clerk.	
Minn., Granite Falls.....	10 a.m., July 1.	Constructing state highway.....	County Auditor	
La., Mansfield.....	July 6.	10,130 yds. pav., 3,500 ft. curb and 560 ft. storm sewers. E. E. Swope, Town Engr.		
N. Y., Albany.....	1 p.m., July 7.	Repairing highways in 21 counties.....	Edwin Duffey, State Hwy. Comr.	
O., Cincinnati.....	Noon, July 9.	Road improvements.....	Albert Reinhardt, Clerk	
Pa., Pittsburgh.....	1.30 p.m., July 12.	County highway tunnel.....	A. D. Neeld, Cons. Engr., 231 4th Ave.	
Ala., Tuskogee.....	July 13.	Grading, draining and graveling roads.....	W. S. Keller, State Hwy. Engr., Montgomery.	
O., New Albany.....	Noon, July 15.	Constructing sidewalks.....	F. M. Heischman, Clerk	
Ia., Oelwein.....	July 20.	First-class paving on thirty blocks.....	G. H. Bishop, City Eng.	
O., Tiffin.....	July 25.	25,800 sq. yds. brick and crushed stone or concrete base, 15,600 ft. sandstone or concrete curb, excavation, etc., for four streets.....	O. J. Oberlander, City Engr.	

SEWERAGE

N. Y., Albany.....	3 p.m., June 21.	Laying sewers & drains in connection with street improvement work	Isadore Wachsmann, Sec. Bd. C. & S.
Ia., Fort Dodge.....	9 a.m., June 21.	Constructing sanitary and storm sewers (2 jobs).....	W. L. Tang, City Clerk
Minn., St. Paul.....	10.30 a.m., June 21.	Constructing sewer	Aug. Hohenstein, Pur. Agt.
N. J., Millburn.....	8 p.m., June 21.	8-in. vit. tile sanitary sewer.....	M. R. Silance, Twp. Clk.
O., Zanesville.....	Noon, June 21.	Sanitary sewer construction.....	Director of Public Service
Mass., Boston.....	Noon, June 21.	Laying pipe sewers and drains.....	Patrick O'Hearn, Actg. Comr. Public Works
Mich., Bay City.....	9 a.m., June 21.	400 ft. 12-in. tile sewer.....	E. E. Prohazka, Sec. B. P. W.
Conn., Greenwich.....	June 21.	Constructing sewage disposal plant at East Portchester. S. E. Minor, Engr., Tr. Co. Bldg.	
N. J., Camden.....	8 p.m., June 21.	Constructing sewers and drains.....	A. B. Sparks, Chr. Com. on Sts. & Hwys.
N. Y., Scarsdale.....	June 22.	Constructing 23,500 ft. of 8 and 10-in. sewers.....	J. R. Ross, Chr. Sewer Comrs.
Conn., Waterbury.....	8 p.m., June 22.	Constructing sewers and appurtenances.....	R. A. Calrns, City Engr.
Mass., Boston.....	Noon, June 22.	Constructing sewerage works.....	Patrick O'Hearn, Actg. Comr. Public Works
O., Canton.....	Noon, June 23.	Constructing sanitary sewer.....	Z. W. Kent, Dir. P. S.
N. Y., Brooklyn.....	11 a.m., June 23.	Const. sewers, plumb. & heat. for sew. pump. sta., etc.	L. H. Pounds, Boro. Pres.
N. Y., L. I. City.....	11 a.m., June 23.	Sewer construction in several streets.....	M. E. Connolly, Boro. Pres.
N. Y., New York.....	10.30 a.m., June 24.	Laying sewers in several streets.....	Douglas Mathewson, Boro. Pres.
N. J., Newark.....	3.15 p.m., June 24.	990 ft. 6 and 10-in. sewer pipe, manholes, etc.....	M. R. Sherrerd, Ch. Engr.
O., Lowellville.....	Noon, June 24.	Sewer construction	C. W. Baker, Clerk
Mich., Detroit.....	10 a.m., June 24.	Erecting and completing reduction plant.....	G. H. Fenkell, Comr. P. W.
Ill., Chicago.....	June 24.	Constructing intercepting sewer.....	John McGillen, Clk. Sanitary Dist. 910 Mich. Ave.
Wis., Waupaca.....	4 p.m., June 25.	About 2,952 ft. 8-in. vit. pipe or cement sewer.....	H. E. Gordon, Chr. B. P. W.
Wis., Oconto.....	9 a.m., June 25.	Constructing sewer in two streets.....	J. A. Cohen, Mayor
O., Lima.....	June 26.	2,660 ft. of sewer construction (3 jobs).....	Joseph Askins, Dir. P. S.
Mo., Kirksville.....	7 p.m., June 28.	Constructing storm sewers.....	C. V. Dowling, City Engr.
O., Columbus.....	Noon, June 29.	Constructing storm sewers.....	G. A. Borden, Dir. P. S.
Minn., Glencoe.....	7 p.m., June 29.	Sanitary sewer system and disposal plant.....	Peter Hatz, Vil. Clk.
N. C., Winston-Salem.....	June 30.	Change of date for constructing sewer and sewage disposal plant.....	J. L. Ludlow, Engr.
O., Brewster.....	Noon, July 2.	Sewer construction	Village Clerk
Ill., East St. Louis.....	2 p.m., July 7.	Constructing outlet sewer.....	G. L. Tarlton, Pres. Bd. Trust.
O., Columbus.....	Noon, July 16.	Disposal plant and sewer system for Infirmary.....	John Scott, Clk. Co. Comrs.

WATER SUPPLY

Alt., Bassano.....	June 19.	Furnishing 750 gals. turbine pump.....	G. B. R. Bond, Town Clk.
Ill., Oquawka.....	11 a.m., June 19.	Constructing pumping plant.....	Comrs. Drainage Dist. No. 3
Mont., Glendive.....	Noon, June 19.	1,000 ft. 4-in. c. i. water main.....	A. C. Colin, City Clk.
Mich., Detroit.....	2.30 p.m., June 21.	Furnishing pipe line material.....	G. J. Finn, Sec. Fire Comm.
Ill., Chicago.....	11 a.m., June 21.	Furnishing 1,330 disc water meters.....	W. R. Moorhouse, Comr. P. W.
Ill., Watertown.....	3 p.m., June 21.	Resetting boilers and brick work.....	Dr. J. A. Campbell, Mgr. State Hospital
Mass., Salem.....	June 21.	Two 10,000,000-gallon steam pumps.....	G. F. Ashton, City Engr.
Mo., Butler.....	June 22.	Water works improvements to cost \$40,000.	H. G. Cook, Mayor
N. Y., New York.....	11 a.m., June 22.	Coagulating plant consisting of steel structure and steel bunker for storing about 600 tons sulphate of alumina and conveyor; bronze or steel ladders, nozzles, etc., for Catskill Aqueduct line.....	W. Bruce Cobb, Secy. Comrs. Ed. Water Supply
Mo., St. Louis.....	Noon, June 22.	2,595 tons 3, 6, 8, 12, 20, 30 and 36-in. c. i. coated water pipe; also 350 tons c. i. coated special castings; also 297 3, 4, 6, 8, 12, 20 and 30-in. stop and tapping valves; 850 fire hydrants and hydrant top parts.....	E. R. Kinsey, Pres. Bd. Public Service
Neb., Lincoln.....	2 p.m., June 22.	500 h.p. water tube boiler with chain grate stoker for city water plant.....	City Clerk

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Ind., South Bend	10 a.m., June 22.	Water connections on several streets.....	Veronica C. Sweeney, Clk. of Board	
Neb., Lincoln	June 22.	Erecting 500 h.p. boiler at water plant.....	T. H. Berg, City Clerk.	
N. Y., Oakfield	Noon, June 24.	500 tons c. i. pipe, 51 hydrants and 30 valves.....	A. B. Rathbone, Vil. Clk.	
O., Youngstown	Noon, June 25.	Laying water and steam pipes.....	H. C. Fox, Clerk	
N. J., Gloucester City	Noon, June 25.	Furnishing water works equipment.....	J. F. Lenny, City Clerk	
N. Y., LeRoy	June 25.	Constructing dam, filtration plant, laying pipe, etc.....	John Maloney, Pres. Water & Light Comrs.	
Ont., Stratford	9 a.m., June 25.	Elevated water tower	F. A. Gaby, Ch. Engr. Hydroelectric Power Comm., Continental Life Bldg., Toronto.	
Ark., Harrison	June 25.	Water works to cost \$25,000.....	G. W. O'Neal, City Secy. City Clerk	
Wis., Janesville	June 25.	Addition to pumping station.....	G. F. Oliver, Vil. Clk.	
Neb., Papillion	8 p.m., June 26.	Const. pump house, driving wells & laying water mains.....	H. S. Dunlop, Vil. Clk.	
O., Euclid	Noon, June 28.	6-inch water main	Vance Hicken, Clk. of Village Council	
O., Rittman	June 29.	Constructing water works; furnishing pumping equip.....		
Ill., Chicago	11 a.m., June 30.	Pumping machinery and auxiliaries.....	W. R. Moorhouse, Comr. P. W.	
W. Va., St. Marys	Noon, June 30.	Constructing 380,000 gal. concrete reservoir.....	E. J. Miller, City Engr.	
O., Columbus	July 1.	Dam, waste weir & flood regulation gates at reservoir.....	J. I. Miller, Supt. P. W.	
Ky., Covington	July 8.	3,670 tons cast-iron pipe and 20 tons specials.....	J. M. Howk, Comr. Pup. Prop.	
O., Columbus	2 p.m., July 8.	Constructing dam, waste weir and flood regulation gates at reservoir.....	J. I. Miller, Supt. Pub. Wks.	
Porto Rico, San Juan	10 a.m., July 9.	Constructing 70,000-gal. steel standpipe or tank.....	Quartermaster	
India, Madras	July 14.	Furnishing c. i. pipe, hydrants and valves.....	President of Corporation	

LIGHTING AND POWER

O., Washington	Noon, June 19.	Street lighting for five years.....	Ray Maddox, Clk. Dir. P. Serv.
O., Kent	Noon, June 19.	Installing power plant at State Normal School.....	J. A. McDowell, Sec. Bd. Trus.
Cal., San Jose	11 a.m., June 21.	Street lighting in one district.....	H. A. Pfister, Clk. Bd. of Supv.
Va., Hopewell	Noon, June 21.	15-year franchise for street lighting.....	P. G. Bunting, Petersburg
N. Y., New York	11 a.m., June 21.	Additions & repairs to electrical equipment of pub. school.....	C. B. J. Snyder, Supt. Schools
Minn., St. Paul	10:30 a.m., June 21.	Incandescent lamps for one year.....	Aug. Hohenstein, Pur. Agt.
N. Y., Albany	3 p.m., June 21.	Furnishing lamp posts; other electrical work.....	Isadore Wachsmann, Sec. Bd. C. & S.
D. C., Washington	June 22.	Electrical supplies for Navy Department.....	Bureau of Supplies & Accts.
D. C., Washington	July 3.	Extension to bldg. & install. new equip. at boiler plant.....	Bu. of Yds. & Docks, N. Dept.
N. J., Rochelle Park	July 5	Street lighting for five years.....	Comrs. of Light Dist. No. 1
Okl., Adamson	Sept. 20.	Electric light plant.....	Frank Mann, Engr.

FIRE EQUIPMENT

Wash., Puget Sound	10 a.m., June 22.	Rubber fire hose.....	Saml. McGowan, Paymaster Gen'l, Washington, D. C.
N. Y., Niagara Falls	June 22.	Tractor for fire engine.....	Fire Commissioner.
D. C., Washington	10 a.m., June 22.	Rubber fire hose for Puget Sound, Wash., Navy Yard.....	S. McGowan, Paymaster Gen., U. S. Navy.
Ind., Muncie	2 p.m., June 24.	One tractor, 1 triple combination and 1 pumping engine and hose cart.....	R. E. Gates, Sec. Bd. Safety
Mich., Detroit	2:30 p.m., June 28.	Engines and equipment for fire department.....	G. J. Finn, Sec. Fire Comm.
N. C., Southport	8 p.m., June 30.	1,500 ft. rubber-lined hose and three reels.....	H. P. O'Hagan, City Engr.
England, London	August 11.	Installing fire alarms at Rangoon.....	Ogilvy Gillanders & Co., 67 Cornhill, E. C.

BRIDGES

O., Hamilton	10 a.m., June 19.	Constructing concrete bridge	W. W. Crawford, Co. Aud.
Cal., Needles	2 p.m., June 19.	Steel highway bridge.....	Commissioner of Indian Affairs, Washington, D. C.
D. C., Washington	2 p.m., June 19.	Steel highway bridge over Colorado River at Mohave City, Ariz.	Cata Sells, Comr. Indian Affairs
O., Akron	11 a.m., June 21.	Reconstruction of abutment.....	County Comrs.
O., Clinton	11 a.m., June 21.	Reconstructing abutment	C. L. Bower, Summit Co. Clk.
Pa., Grove City	June 21.	Bridge construction	Mercer Co. Comrs.
O., St. Clairsville	June 21.	Constructing several bridges.....	E. Campbell, Co. Aud.
N. J., Elizabeth	2:30 p.m., June 21.	Bridge construction	J. L. Bauer, Co. Engr.
Ind., Indianapolis	June 21.	Constructing 100-ft. reinforced concrete arch bridge.....	B. J. T. Jeup, City Engr.
Mont., Malta	2 p.m., June 21.	Excavating 1,750 yds.; bridge and culvert work.....	W. B. Schneider, Clk. & Rec.
Md., Baltimore	Noon, June 22.	Repairing bridge at Chestertown.....	O. E. Weller, Chr. State Roads Comm.
Minn., Little Falls	2 p.m., June 22.	Reinforced concrete culvert	B. Y. McNairy.
O., Hamilton	10 a.m., June 23.	Constructing retaining wall.....	W. W. Crawford, Co. Aud.
Wis., Ellsworth	2 p.m., June 23.	Bridge construction	H. G. Eklund, Chr. Twn. Bd.
N. J., Elizabeth	2:30 p.m., June 23.	Bridge construction	Jacob L. Bauer, Co. Engr.
Cal., San Francisco	3 p.m., June 23.	Strauss trunnion bascule bridge & substructure.....	M. M. O'Shaughnessy, City Engineer
N. J., Paterson	2 p.m., June 23.	Constructing two bridges.....	F. G. Sloan, Chr. Rd. Comm.
Md., Baltimore	11 a.m., June 23.	Reconstructing bridge	H. K. McCay, City Engr.
Minn., Westbrook	1 p.m., June 24.	Constructing steel & concrete bridges.....	L. L. Hedman, Twn. Clk.
O., Cincinnati	Noon, June 25.	Constructing culvert	Albert Reinhardt, Clk. of Bd.
Wash., Seattle	25.	Two steel draw bridges to cost \$880,000.....	A. L. Valentine, Chr. B. P. W.
Pa., Williamsport	Noon, June 25.	Five stone arch bridges 10 to 24-in. span; three reinforced concrete bridges 24 to 40-in. span	A. P. Zuber, Clk. Co. Com.
N. J., Somerville	10 a.m., June 25.	Constructing several bridges.....	Borough Clerk.
Wash., Everett	2 p.m., June 28.	Bridge construction	County Auditor.
Pa., Allentown	10 a.m., June 28.	Constructing and repairing bridges.....	H. C. Wienert, Clk. Co. Com.
O., Lebanon	June 28.	160 ft. high truss steel bridge, creosoted block floor and concrete abutments	John M. Mulford, Co. Aud.
Mo., St. Louis	Noon, June 29.	Steel for Mississippi River bridge.....	E. R. Kinsey, Pres. B. P. S.
La., Lake Charles	July 1.	Reinforced conc. bridge, costing \$100,000.....	Police Jury
O., Cincinnati	Noon, July 2.	Retaining wall and steel plate for bridges.....	F. E. Wessellman, Pres. Bd. Hamilton Co. Comrs.
O., Columbus	2 p.m., July 2.	Building levee embankment and concrete culverts.....	J. I. Miller, Supt. P. W.
N. D., Hankinson	2 p.m., July 6.	Constructing 9 steel bridges.....	F. A. Burton, Co. Aud.
Cal., Santa Ana	July 6.	Bridge	City Trustees
Ore., Gold Beach	July 7.	Reconstructing Elk River bridge.....	J. M. Caughell, Co. Engr.
O., Massillon	10 a.m., July 7.	Constructing substructure of bridge.....	C. L. Stoner, Clk. Co. Comrs.
N. D., Bismarck	2 p.m., July 8.	Constructing seven reinforced concrete culverts.....	T. E. Flaherty, Co. Aud.
N. D., Jamestown	July 8.	Constructing reinforced concrete culverts.....	Andrew Blewitt, Co. Aud.

MISCELLANEOUS

D. C., Washington	2 p.m., June 21.	Construction Postoffice at Cuero, Texas.....	J. A. Wetmore, Act. Sup. Arch.
N. J., Newark	Noon, June 21.	Furnishing and delivering playground equipment.....	Harry Mayer, Acting Sec.
Wis., Milwaukee	2 p.m., June 21.	Metal work for lighthouse tower.....	Lighthouse Inspector
N. Y., New York	3 p.m., June 24.	Furn. sand, gravel, broken stone and screenings.....	Park Board
N. J., Camden	8 p.m., June 21.	Furnishing two asphalt wagons.....	A. B. Sparks, Ch. of Com.
D. C., Washington	June 22.	160,000 lbs. asphalt.....	Bureau of Supplies & Accts.
			Navy Dept.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
S. C., Holly Hill	11 a.m., June 22.	Constructing 5-mile drainage canal.....	M. L. Breland, Chr. Drnge. Comm.	
Tex., Port Lavaca	10 a.m., June 22.	45 miles drainage ditches.....	T. H. Clement, Engineer	
O., Hamilton	10 a.m., June 23.	Constructing revetment	W. W. Crawford, Co. Aud.	
D. C., Washington	3 p.m., June 24.	Construction complete of Post Office at Mt. Vernon, N. Y.	J. A. Wetmore, Acting Supv. Architect.	
Mich., Detroit	10 a.m., June 24.	Garbage reduction plant.....	GEO. H. Fenkel, Comr. Pub. Wks.	
N. Y., Lockport	June 25.	Addition to clerk's office and jail.....	Wdg. Com., Bd. of Supv.	
Tenn., Memphis	June 26.	700,000 cu. yds. levee work.....	Mississippi River Comm.	
Tex., Beaumont	June 28.	Constructing 128-ft. timber dam.....	J. S. Weed, Engineer.	
Miss., Meridian	June 28.	Furniture for city hall.....	City Council.	
Tex., Marlin	June 29.	Constructing county jail to cost \$25,000.....	County Comrs. Court	
Mont., Great Falls	2 p.m., July 1.	Canals and structures on Sun River project.....	U. S. Reclamation Service	
D. C., Washington	July 10.	5,000 bbls. Portland cement.....	F. H. Duehay, Supt. Prisons.	
D. C., Washington	July 23.	Const. complete of U. S. Post Office at Webb City, Mo.	J. A. Wetmore, Act. Supv. Archt.	

STREETS AND ROADS

Merced, Cal.—Pledging support to campaign for promotion of proposed \$15,000,000 bond issue for extensive system of good roads laterals to connect entire state system with main trunk lines and authorizing appointment of committee to conduct campaign to that end, members of annual convention of Yosemite-to-the-Sea Good Roads Association went on record.

Sacramento, Cal.—Bids on all three Superior California jobs received by the State Highway Commission were above the estimates. New bids will be asked. For work in Tehama County, Hoffman & McLaren of Oakland wanted \$43,657 to build the 12 miles from Red Bluff to northern county boundary. Estimate was \$43,277. H. & H. & T. W. Harlan of Williams asked \$49,990 to build 6.5 miles of concrete road from Proberta to Red Bluff. Estimate was \$43,559. The Ross Construction Co. of Sacramento wanted \$24,906 for building of bascule bridge on eastern side of the Yolo Basin. Estimate was \$21,818. Bids for jobs in Kings County and Los Angeles County, amounting to about \$71,000, were within estimate.

San Francisco, Cal.—Klamath County, Ore., will join Modoc County, Cal., in building highway into noted Modoc lava beds in Northern California. On main route are outlined number of scenic attractions in region covering approximately 150 square miles. There are cinder cones, ice caves, fissures and extinct volcano craters.

San Francisco, Cal.—Board will get bids for curbing and paving eastern half of 14th Ave., between Anza and Fulton Sts., fronting city property, cost being estimated at \$9,800, and for laying sidewalks on Fulton St. from 14th Ave. to Great Highway, in front of Golden Gate Park, estimate of cost being \$6,800.

Stockton, Cal.—East Market St. is to be improved. City council has approved plans and specifications for improving thoroughfare from northerly line of Fair Oaks Ave. to westerly line of Filbert St., by grading, curbing and guttering; constructing concrete sidewalks and asphalt-concrete pavements in accordance with resolution of intention No. 518.

Stockton, Cal.—More public work will be done in California during coming biennial period than ever before in history of state. State engineering department has several million dollars to spend, and state highway commission has \$4,500,000 yet to spend of \$18,000,000 issue voted to build 3,000-mile system of state highways in California. There are over \$15,000,000 in bonds for capitol extensions, San Francisco harbor improvement and University of California development. Taking all into consideration there is between \$25,000,000 and \$30,000,000 to be expended during 1915 and 1916 in public improvements.

Bridgeport, Conn.—Streets to be improved under contracts to be made by Public Works Director Courtade with Warren Bros. Co. are William St., from Crescent Ave. to Berkshire Ave.; Iranistan Ave., from Railroad Ave. to Fairfield Ave.; Bostwick Ave., from State St. to Morris St.; Park Ave.; from Laurel Ave. to Wood Ave.; North Ave., from Dewey St. to Park Ave., and Noble Ave., from Berkshire Ave. to Edna Ave.

Naugatuck, Conn.—A petition to boro board to take action toward ordering permanent pavement laid in boro will probably be put in circulation within

next few days, and work is expected to be taken up soon. Expenditure for permanent pavement this year will probably be made on South Water St., Rubber Ave., and possibly Division St. and parts of Oak and Maple Sts. on east side of bridge.

Wilmington, Del.—Additional bids for 111,000 square yards of paving will be asked for in near future.

Wilmington, Del.—County Engineer James Wilson has submitted to Levy Court list of roads which in his opinion it would be to best interest to county to surface at this time, with some bituminous wearing coat. Mr. Wilson suggested that court ask for bids on following work: 18,500 yds. of surface on Concord Pike and 10,000 sq. yds. on Rockland road; Christiana Hundred, Campbell's road, 18,000 sq. yds.; Lancaster pike from city line to Oak Hill School, 10,560 yds.; Lancaster pike to Price's Corner, 13,000 sq. yds.; Montchanin road, 14,080 sq. yds.; New Castle Hundred, from city line to Hare's Corner, 42,000 yds.; Hare's Corner to State road station, 12,742 sq. yds.; State road to Tybouts' Corner, 13,400 sq. yds.; Bird's Corner to St. Georges, 5,035 yds.

Daytona, Fla.—The biggest majority ever given similar proposition in state of Florida was that received in election held here to determine whether or not a bond issue of \$400,000 should be authorized for purpose of constructing 50 odd miles of brick or concrete and other hard surfaced roads in the eastern section of Volusia County. Bond issue was endorsed by property owners in affected district by vote of ten to one. Road to be built begins at St. Johns County line, continues through Ormond, Daytona, Daytona Beach and Seabreeze and Port Orange to point a few miles north of New Smyrna.

Jacksonville, Fla.—A paved highway from state prison farm at Raiford to Maixox, on national highway, is latest proposed good road development in the state.

St. Augustine, Fla.—An election upon bond issue of \$250,000 for building Dixie Highway through Columbia County has been called for July 8 by county commissioners.

Edwardsville, Ill.—Township officials of Edwardsville and Chouteau townships have been petitioned to construct new road on Edwardsville and Chouteau township line, between Poag and Mitchell Rd., west of Edwardsville.

Brazil, Ind.—Board of Commissioners have taken first step toward construction of permanent highway on north Morgan's Crossing road, by ordering the petition advertised.

Fort Wayne, Ind.—Board of works will ask city council to appropriate \$6,500 to pay the city's portion of new street improvement work contemplated. Among streets to be paved is State St., which job must be done this year, as legislature has appropriated funds for paying for state's share of work, which funds would not be available next year.

Fort Wayne, Ind.—Bids submitted on eight streets in batch of paving jobs to be let June 15, show that brick with same foundation and curb is running higher than asphalt. Proposals and awards for material as made by Board of Works, subject to change by property owners, are as follows: Ruth St. from Spy Run Ave. to the West Line of Lot No. 5—Herrick's addition; award, concrete. Grace Construction Co.—Trinidad lake sheet asphalt: Stone curb, \$5.38; bituminous concrete, stone curb, \$5.49; cement curb, \$5.09. Brooks Construction Co.—Metropolitan block on concrete, stone curb, \$5.97; cement curb, \$5.53; Moellering Construction Co.—Metropolitan block on concrete, stone curb, \$6.10; cement curb, \$5.35; cement curb, \$4.65; reinforced concrete, stone curb, \$4.05; cement curb, \$4.37.

Goshen, Ind.—County Commissioners have ordered construction to begin on \$5.30; cement curb and gutter, \$4.81. Bituminous concrete: Stone curb, \$4.99; cement curb and gutter, \$4.54. Moellering Construction Co.—Metropolitan block on concrete: Stone curb, \$5.47; on stone foundation, stone curb, \$4.80; on concrete, cement curb, \$4.67; on stone, cement curb and gutter, \$4.09; reinforced concrete, stone curb, \$4.59; cement curb, \$3.82. State St. St. Joe River to Anthony Blvd.; Award, Brick—Grace Construction Co.—Trinidad lake asphalt, \$1.63 sq. yd. Moellering—Metropolitan block, stone foundation, \$1.48; on concrete, \$1.76. Brooks Construction Co.—Metropolitan block, repressed, \$1.70. Begue St. from Wayne St. to Liberty St.; Award, Concrete—Grace Construction Co.—Trinidad lake asphalt, stone curb, \$7.14; cement curb, \$6.61; bituminous conc. stone curb, \$6.77; cement curb and gutter, \$6.27. Moellering Construction Co.—Metropolitan block, stone curb, on concrete, \$7.43; on stone, stone curb, \$6.56; on concrete, cement curb, \$6.94; on stone, cement curb, \$6.11; reinforced concrete, stone curb, \$6.15; cement curb, \$5.66. Brooks Construction Co.—Metropolitan block, on concrete, stone curb, \$7.61; cement curb, \$7.55. Murray St., Barr St. to Calhoun St.; Award, Brick—Grace Construction Co.—Trinidad lake sheet asphalt, \$1.63 sq. yd.; bituminous concrete, \$1.58 per sq. yd. Moellering Construction Co.—Metropolitan block, on concrete, \$1.78. Brooks Construction Co.—Metropolitan block, \$1.86 sq. yd. Hoagland Ave. from De-Wald St. to Leith St.; Award, Asphalt—Grace Construction Co.—Trinidad lake sheet asphalt, old stone curb, \$6.03; cement curb and gutter, \$6.46; bituminous concrete, old stone curb, \$5.65; cement curb, \$6.18. Brooks Construction Co.—Metropolitan vitreous paving block, concrete base, stone curb, \$6.10. Moellering Construction Co.—Metropolitan block on concrete, stone curb, \$6.44; cement curb, \$5.66. Rock-hill St., Jefferson St. to Lavina St.; Award, Brick—Grace Construction Co.—Trinidad asphalt, stone curb, \$7.93; cement curb and gutter, \$7.41; bituminous concrete, stone curb, \$7.48; cement curb, \$6.80; on stone, stone curb, \$6.83; cement curb, \$6.10; reinforced concrete, stone curb, \$6.44; cement curb, \$5.66. Rock-hill St., Jefferson St. to Lavina St.; Award, Brick—Grace Construction Co.—Trinidad asphalt, stone curb, \$7.93; cement curb and gutter, \$7.41; bituminous concrete, stone curb, \$7.48; cement curb, \$6.80; on stone, stone curb, \$6.83; cement curb, \$6.10; reinforced concrete, stone curb, \$6.44; cement curb, \$5.66. Rock-hill St., Jefferson St. to Lavina St.; Award, Brick—Grace Construction Co.—Trinidad asphalt, stone curb, \$5.82; cement curb, \$5.38; bituminous concrete, stone curb, \$5.49; cement curb, \$5.09. Brooks Construction Co.—Metropolitan vitreous block, stone curb, on concrete, \$8.06; cement curb, \$7.67. Moellering Construction Co.—Metropolitan block on concrete, stone curb, \$8.26; cement curb, \$7.40; on stone, stone curb, \$7.20; cement curb, \$6.45; reinforced concrete, stone curb, \$6.99; cement curb, \$6.04. Jones St., Rockhill St. to the End of the pavement east of College St.; Award, Brick—Grace Construction Co.—Trinidad asphalt, stone curb, \$5.82; cement curb, \$5.38; bituminous concrete, stone curb, \$5.49; cement curb, \$5.09. Brooks Construction Co.—Metropolitan block on concrete, stone curb, \$5.97; cement curb, \$5.53; Moellering Construction Co.—Metropolitan block on concrete, stone curb, \$6.10; cement curb, \$5.35; cement curb, \$4.65; reinforced concrete, stone curb, \$4.05; cement curb, \$4.37.

section of Lincoln highway running from city limits to Goshen to Benton Township line, distance of five miles. This is second brick section of Lincoln highway to be built in Elkhart County and will cost \$72,243 or about \$15,000 a mile. Brick section will be 16 ft. wide with dirt berms 8 ft. wide on each side, making a 32-ft. road. Cement curb will be used instead of usual retaining stone.

Portland, Ind.—County commissioners have received bids for construction of John Cring et al. road in Wayne township. The road is less than a mile long and several bids were received for its construction. The commissioners did not award contract because low bidder, Dan Wallace, specified Ridgeville stone. Following were the bids received: Arthur Millet, \$3,290; W. R. Wheat, \$3,428; Henry Longnecker, \$3,436; Wilson P. Spade, \$3,950; Robinson & Shultz, \$3,590; C. H. & W. M. Ireland, \$3,469; J. W. Wright & E. A. Gray, \$3,655.40; Allison Fulton, \$3,553.17; Dan Wallace, \$2,639; D. O. Tettner, \$3,647; Fennig, Luttmann & Fennig, \$3,660.

Richmond, Ind.—Council satisfied that appropriations made by city for each permanent street improvement authorized this year were perfectly fair and equitable, has passed ordinance authorizing \$50,000 bond issue to pay city's share of various improvements contracted for this year.

Dubuque, Ia.—Election will be held June 21 for voting on issuance of bonds in sum of \$9,000 for improvement of Sinsinawa Ave. in East Dubuque.

Ottumwa, Ia.—It has been decided at regular meeting of Ottumwa Commercial Association to solicit funds for oiling of four principal highways, one in each direction out of city, and committees have started in effort to raise the \$2,000 which will be needed to do this.

Walnut, Ia.—Walnut has signed contract for nearly one mile of paving. Four blocks will be brick and balance bituminous concrete at \$1.34, best price ever made in Iowa for same kind of material, it is said. Brick paving was let at \$1.90. Engineer J. H. Mayne of Council Bluffs is now setting the stakes. All paving must be done before 15th day of September. This paving is to be on River-to-River Rd.—Main St.—and with our present 40 electroliners on street will make this one of finest streets in any small town in Iowa.

Newton, Kan.—Resolution has been adopted for paving on Second St., between point 150 ft. east of Main St. and Kansas Ave. Resolution for street curbing on South Second St., from Emmarilla to Elm St., was also adopted, and ordinance for sidewalks on east side of block 19 and on east and north sides in block 91.

Carlisle, Ky.—All bids for reconstruction of portion of Carlisle and Sharpsburg turnpike in Nicholas County, which was received by Nicholas Fiscal Court, have been rejected.

Frankfort, Ky.—Owen County people have subscribed \$15,000 for state aid road work, \$4,000 for 8-mile road between Owenton and Gratz, leading to Shelbyville, and \$11,000 for 18 miles from Owenton to Carrollton by way of Worthville.

Lexington, Ky.—The Fiscal Court of Fayette county has decided to purchase White motor road oiling machine at cost of \$6,200 for use on pikes of county.

Graveland, Mass.—Town will vote on June 11 on appropriating \$4,000 to build section of oil gravel road from Haverhill city line in Bradford district, and Salem St. to junction of Salem and School Sts.

Boston, Mass.—Paving of Tremont St. from Scollay Sq. to Boylston St., is now definitely provided for. Work will begin latter part of next week, according to promise of Coleman Bros., who were given contract at \$28,708.20. There were seven bidders for job. Estimate of city engineers was \$30,356.

Northampton, Mass.—City Council has voted to accept proposition of State Highway Commission presented by F. D. Kemp, a member of the Commission, to construct state highway from point on North King St. to point near Hatfield town line, distance of little more than a mile, city to pay \$11,000 of estimated cost of \$30,000. Construction of this piece of road will make continuous stretch of fine state roads from New York through Connecticut and Massachusetts into Vermont.

Dowagie, Mich.—Estimates for Orchard, Oak and West Division St. paving have been filed with city council by

City Engineer Stevens. Total cost of Oak St. paving, from North Front to Telegraph St., is \$5,313. The West Division St. work, extending from North Front St. north to intersection of Center and Commercial Sts., will cost \$4,350.88 and cost of Orchard St. paving, from West Division to Telegraph, will be \$6,232.25. This totals \$15,946.13.

Dowagie, Mich.—City Engineer Stevens' estimates for sidewalk building this year reaches total of \$4,403. Of this, city's share of expense will be \$2,499.

Hastings, Mich.—Though Barry county is not under county road system, a number of miles of state reward roads will be built this season. Carlton township has voted to build two miles, thereby filling gap in nine-mile stretch of state reward road between Hastings and Freeport. When this road is completed there will be almost a continuous stretch of state reward road between Hastings and Grand Rapids, via Browne and Alto.

Duluth, Minn.—Paving of two principal thoroughfares between West Duluth and Duluth is being considered.

Duluth, Minn.—Commissioner Farrell, head of the works division, has ordered City Engineer Ayres to prepare plans for resurfacing of 27th Ave. west.

Duluth, Minn.—Commissioner Farrell, head of works division, has declared that bitulithic will be used for East First St. pavement unless property owners decide otherwise.

Chillicothe, Mo.—A resolution has been adopted to grade, pave, curb and otherwise improve Cherry St., from north side or line of Clay St. to south side or line of Polk St.

Joplin, Mo.—Main St. in Carterville will have sidewalks from beginning to end and on both sides of street. Ordinances have been ordered drawn at a meeting of Council and estimate will be made later. This means that ten blocks of Main St. will have first-class sidewalks.

Maryville, Mo.—Council has passed bill to purchase \$1,575 street flusher over mayor's veto.

St. Joseph, Mo.—Ordinance has been passed to provide for paving with concrete, a highway along Hyde Park Ave., from King Hill Ave. to the west line of block 13, Hyde Park Third Extension; thence northeast along the highway lying along the northwest boundary of said block, to Noyes Ave.; thence east along Noyes Ave. to the city limits at Ninth St. (except between the rails and 18 ins. outside thereof of the street railway tracks, to be paved with brick blocks), and constructing curbing and sidewalks there along.

Jefferson City, Mo.—Mayor Thomas has taken up with members of Council proposition of paving High St. from Monroe to Jefferson. Among propositions so far suggested creosote wood block street seems to be the best. City Engineer Harding said that to resurface street with brick would cost in neighborhood of \$3,64; wood blocks \$4.80 and paving street with new brick 8 ft. from curbing on both sides would cost \$2.65.

St. Joseph, Mo.—Ordinance has been passed to provide for paving with Trinidad sheet asphalt on old macadam and gutter Frederick Ave. from 26th St. to west line of grounds of State Hospital for Insane, and constructing concrete sidewalks, driveways and curbing where necessary.

Fairbury, Neb.—Mayor Mason and City Council have enacted ordinance which, when it becomes effective, will result in paving public square and one block on adjacent streets. Work will commence in July.

Fremont, Neb.—Another paving district providing for improvement of Park Ave. for one block between Military Ave. and 8th St., has been created at adjourned meeting of City Council. The one-block stretch will be paved along with other streets. This makes total of ten districts created within last month.

Atlantic City, N. J.—Resolutions calling for paving of Meadow Blvd. have been prepared by road committee of board of freeholders and will be introduced at next meeting. It is reported that cost of work would be about \$100,000, and if negotiations now pending with state road department are successful county will receive about one-half of total cost. Remainder will have to be borne by the county.

Atlantic City, N. J.—Stating that acting Governor Edge, at their request, had been able to get promise of State Road

Commissioner Stevens for state aid to extent of about \$50,000, Board of Freeholders took action at regular meeting to pave Meadow Blvd. It is estimated that total cost of improvement will be about \$100,000, and Atlantic County will pay about one-half.

Deal, N. J.—Deal Board of Commissioners have voted to have application of dust-laying oil made on Ocean Ave. by Standard Oil Co. The oil that is to be used will cost 5½ cts. a gallon. Ten thousand gallons of oil will be used on Ocean Ave., Jerome Ave. and Pleasant Place.

East Orange, N. J.—An appropriation of \$92,500 has been approved by finance committee of East Orange city council for street department for current year.

Elizabeth, N. J.—Upon third and final reading Board of Works has passed ordinance vacating Franklin St., from First St. to Front St.

Elizabeth, N. J.—Ordinances appropriating a total of \$102,368.06 to board of works for repaving of streets have been passed. One ordinance appropriated \$32,000 for Broad St. and other appropriated \$70,368.06 for various other streets.

New Brunswick, N. J.—Decision was reached at meeting of board of freeholders to repair several roads in this section, including the Highland Park Rd., from Third Ave. to the hotel, at the junction of Metuchen Rd.; the Bonhamtown-Woodbridge Rd., and the Keasbey Rd.

Vineland, N. J.—Landis Ave. paving ordinance has passed third and final reading.

Albany, N. Y.—Following street ordinances have been passed: Repaving of State St., from Lark St. to Western Ave., at a cost of \$25,500; improvement of Wilbur St., from Grand St. to Philip St.; establishing the grade of Melrose Ave., from Edgewood Ave. east; improvement of Dove St., from Second Ave. north about 1,000 ft. An amended ordinance for repaving Central Ave., from Lark St. to Watervliet Ave., was introduced by Alderman Gunn. The work will cost \$90,000.

Binghamton, N. Y.—Proposals have been opened for furnishing city with 1,200 gallons of wood preserving oil as follows: Standard Engineering Co., 48 cts. per gallon; C. A. Wood Preserving Co., 55 cts. per gallon; Carbolineum Wood Preserving Co., 89 cts. per gallon. Action on these bids was deferred for one week.

Brooklyn, N. Y.—The Board of Estimates will approve contract, plans and specifications for regulating, grading and paving with asphalt the traffic roadway on Park Circle, at intersection of Coney Island Ave. and Ocean Parkway. It is estimated that Park Circle contains about three acres, paved with gravel and treated with oil. Condition of this pavement is poor and maintenance extremely high, owing to heavy trucking.

Lockport, N. Y.—Bonds for city's share of expense of constructing Chestnut Ridge road, amounting to \$9,700, have been sold by City Treasurer Hutcheson to H. A. Kahler Co., of New York City, on their bid of \$27.16 premium.

Lowville, N. Y.—A special session of the Board of Supervisors has been held. Plans and specifications for three county highways were approved as follows: Shady Ave. to East State St., Lowville, total cost, \$39,000; the village to pay \$16,500 of this amount, the county \$3,600 and the state \$18,900; the Barnes Corners to West Lowville road, total cost \$109,600, the state to pay \$92,064, the county \$17,536; the Gosterville to Lyons Falls road, total cost \$23,800 the state to pay \$19,992 and county \$3,808.

Manlius, N. Y.—One hundred and thirty-three ballots have been cast at special election held. The voting was on proposition for village to contribute \$3,000 toward improvement of Seneca St., main thoroughfare of the village. The vote stood 106 in favor of expenditure and twenty-seven against.

Montrose, N. Y.—At special election on question of paving streets and installing sewage disposal plant, both propositions were carried by vote of 324 votes for and 17 against.

Newburgh, N. Y.—Following a hearing on question of paving Mill St., city council decided to pave street between Broadway and South William and city engineer was directed to make preparations for receipt of bids, which will be opened at next regular meeting of

council on July 6. City Engineer Blake estimated that cost of improvement would be \$21,700.

Niagara Falls, N. Y.—The certificates of indebtedness for \$12,000 issued by city to pay cost of repairing Niagara St. pavement have been sold and money is now available.

Oneida, N. Y.—Preliminary surveys for new road between Sherrill and Kenwood have been started and will be pushed to speed completion. Road will be about a mile long and expenditure about \$9,000, which will be shared equally between town of Verona and Oneida Community Limited, and will be completed by August 1. It will extend from Kingsley's Corners to underpass on Seneca Turnpike at Sherrill.

Watertown, N. Y.—At second quarterly session of board of supervisors final steps were taken preparatory to change in system of building roads in this county. Under this change county treasurer was authorized to borrow on credit of county sum of \$97,800 and issue a certificate of indebtedness for it.

White Plains, N. Y.—Governor Whitman has signed bill carrying an appropriation of \$45,000 for elimination of grade crossing at Bronxville, which residents have been fighting to wipe out for past 12 years.

Henderson, N. C.—Bids for purchase of Vance County's additional road bond issue of \$50,000 will be opened here Friday, June 25.

Butler, O.—Butler Township Trustees have authorized commissioner to issue for township \$40,000 in bonds, to be used for road purposes.

Cincinnati, O.—Resolution has been passed for improving of St. Lawrence Ave. by paving with brick.

Chillicothe, O.—City engineer has submitted estimates to City Council for cement sidewalks, curbs and gutters on E. Second St., to cost \$2,234, and on N. Sugar St. to cost \$785. H. M. Redd is City Engr.

Columbus, O.—Bonds amounting to \$26,655 for road purposes in Beaver, Springfield and Green townships have been awarded by County Commissioners to Ohio National Bank of Columbus.

Geneva, O.—Petitions calling for pavement in Eagle St., between West Main St. and the Nickel Plate tracks, are now being circulated and nearly enough signatures have been affixed at present to guarantee the improvement.

Marlette, O.—Ordinance has been adopted to proceed with improvement of alley in Putnam Pl. and Plumer's Subdivision No. 2 from Mathews St. to Highland St., by paving.

Middletown, O.—Bids will be received at office of city auditor, City of Middletown, O., until 12 o'clock noon, standard time, June 25, 1915, for purchase of bonds of City of Middletown, in aggregate amount of \$6,000. They are issued for purpose of resurfacing, repaving, grading and improving existing streets in City of Middletown.

Niles, O.—Ordinances have been adopted for improvement of various streets.

Niles, O.—Ordinances for paving of Fulton St. between Robbins Ave. and Fenton St.; Girard St. between Robbins Ave. and Fenton St.; and Franklin Ave. between North Main and Liberty Sts. have been adopted by City Council.

Salem, O.—The estimated cost of paving and sewerage West Dry St., between Depot St. and Howard St., was given council by City Engineer B. M. French. It seems that opinion is a little divided as to whether sanitary sewer should go down both sides of street, or in center of street. However, estimate given by city engineer was for placing sewer in center of the street. The estimated cost of this was \$634.30, or \$1.58 per front ft. For paving street, estimated cost was \$2,036, or \$2.07 per front foot.

Salem, O.—The \$75,000 bond issue in Salem Township has been carried by large majority. The total vote was 418, 303 of which was for bond issue and 115 against it. This means new portion of roads between Leetonia and Lisbon and Salem, with possibly some to be applied on the Governor Cox Main Market route No. 14, will be improved.

Springfield, O.—Ordinance has been passed determining to proceed with improvement of roadway portion of Clifton St., from east property line of East St. to north, to west property line of Lafayette Ave. to north, by paving.

Tiffin, O.—Bids will be received until 12 noon, July 6, for purchase of paving bonds in sum of \$64,000. A. T. Hafley is City Auditor.

Toledo, O.—Resolutions have been adopted for improvement of various streets.

Urbania, O.—City Auditor H. M. Crow has announced that it will be impossible to pave Miami St. as far as Pennsylvania Railroad.

West Jefferson, O.—By vote of 286 to 24, the \$30,000 bond issue for street improvements was carried at special election.

Portland, Ore.—Extension of Stark St. is being considered.

Armadore, Pa.—Township Commissioners are considering question of issuing highway bonds in sum of \$50,000.

Beaver, Pa.—Ordinance providing for grading, curbing and paving of sidewalks on Sixth Ave., between Ninth and Twelfth Sts., has passed first and second headings at meeting of Freedom Council.

Camp Hill, Pa.—Election will be held June 19 to vote on question of issuing Market St. paving bonds in sum of \$30,000.

Chester, Pa.—Ordinance has been adopted providing for paving of roadways of Fourth St., from Central Ave. to Flower St.; Caldwell St., from Third St. to Sixth St.; Ninth St., from Edgmont Ave. to Welsh St.; Ninth St., from Welsh St. to Chester River; Flower St., from Second St. to Third St.; Wilson St., from Front St. to Sixth St., and Edgmont Ave., from 24th St. north to the city line, with asphalt, bitulithic, fibertite, warrenite, amiesite, wood block, vitrified brick or block, or any other improved, modern, hard and durable street paving material, for the payment of the cost thereof by the city and the property owners, and that gas, water and conduit pipes be laid and repaired and connections made thereto, and that sewer connections be made.

Johnstown, Pa.—Instructions have been sent out from office of State Highways Commissioner to R. L. Devereaux, of Cresson, telling him to proceed at once with resurfacing and oiling of Valley Pike, Scalp Level pike, from Johnstown to Scalp Level, and the road from Windber to Ashtola. The Valley Pike Rd. is one mile in length, work on Scalp Level Rd. will be seven miles and Windber Rd. will be four miles, making total of 12 miles.

Johnstown, Pa.—It is likely that action will be taken by Council shortly on proposition submitted by Westmont Borough, relative to drainage of proposed Millcreek Rd. to Westmont, which will be paved with brick at joint expense of Johnstown, Westmont, Upper Yoder Twp. and the state.

Johnstown, Pa.—Ordinance has been passed providing for curbing, grading and paving of Cypress Ave. in the 17th Ward of the City of Johnstown, from Wheat St. to Bond St., and providing for payment of the same.

Johnstown, Pa.—Petitions are being circulated asking for paving of that section of Millcreek Rd. that is within city limits.

Johnstown, Pa.—Following close upon special election at which voters 47 to 5 approved proposition of issuing \$10,000 of bonds for foot-front paving of Hickston Ave., in Rosedale Borough, the borough council will have special meeting at which time citizens may have a final voice in the matter.

Kittanning, Pa.—About 10 alleys have been ordered paved and city engineer will draw up specifications for use of brick and paving block and ask for comparative bids.

Lebanon, Pa.—City Engineer T. R. Crowell has submitted street paving specifications for streets to be paved this summer. They differ little from those used last year, there being one or two improvements made.

Montrose, Pa.—At special election in Montrose bonding proposition for paving and sewers, carried by vote of 372 to 17.

Philadelphia, Pa.—Work valued at about \$175,000 has been advertised, bids to be received on June 22, 1915. Estimated cost of several characters of work are as follows: Grading, estimated cost, \$25,000; asphalt paving, \$50,000; granite block paving, \$8,000; asphalt repaving, \$50,000; vitrified block repaving, \$4,000; granite block repaving, \$9,000; bituminous macadam surfacing, \$22,000; water bound macadam surfacing, \$2,000; bituminous macadam resurfacing, \$2,500, and sidewalk construction, \$1,500.

Pittsburgh, Pa.—Construction of boulevard along face of Mt. Washington from Brownsburg Ave. to Mt. Washington is being considered.

Pittston, Pa.—The West Pittston Coun-

cil has received bids for extensive paving, which will place in borough in a few weeks. Bids received were as follows: H. B. Brenton & Son, on asphalt block, bid \$2.41 sq. yd.; concrete, \$1.70 sq. yd.; resetting curb, 20 cts. lin. ft.; replacing curb, 55 cts. lin. ft.; Wyoming Ave. pave, block, 9,945 sq. yds. at \$2.41 sq. yd.; \$23,005.45; concrete, at \$1.70 sq. yd., \$15,226; curb, same price; Luzerne Ave. pave, 7,070 sq. yds., asphalt block, \$2.41; total, \$17,038.70; total for concrete, \$12,019. H. B. Sproul, Peekskill, N. Y.—\$2.25 sq. yds. sheet asphalt, \$1.73; asphalt block, \$2.40; concrete pave, \$1.20; penetration method, 61 cts.; mixing method, 85 cts.; asphalt concrete, 95 cts.; brick gutters, 40 cts. sq. yd.; curb reset, 25 cts.; replaced, 60 cts.; Wyoming and Luzerne Aves., same rate. Pittston Construction Co. (Healey & Mondeau)—Brick, Mack, Toronto or Porter, \$2.20 sq. yd.; Keystone pave block, \$1.95; curb reset, 10 cts., replaced 27 cts.; Luzerne and Wyoming Aves., same rate. Trinidad Asphalt Co., Wilkes-Barre—Two-inch asphalt surface, \$1.21 sq. yd.; concrete mixture, 92 cts. sq. yd.; brick gutters, \$2.30 sq. yd.; resetting curb, 35 cts.; replacing curb, 85 cts. Montezuma asphalt to be used. Joseph Banks Construction Co., Wilkes-Barre—Keystone brick, \$2.15; Toronto or Mack brick, \$2.24; Penn clay, \$2.22; curb reset, 40 cts.; curb replaced, 85 cts.; Luzerne and Wyoming Aves., same rate. Bolton G. Coon Construction Co., Luzerne—Keystone brick, \$2.15; Toronto brick, \$2.30; amiesite, without guarantee, \$1.48; total bid for gutters, \$2,332.50. Wyoming and Luzerne Aves., same rates. Davies & Parry, Dorrance—Exeter and Bridge Sts., Penn clay, total, \$14,035.36; Keystone clay, \$12,638.08; Bessemer shale, \$2.27 sq. yd., \$13,792.52; Toronto brick, \$2.31 sq. yd.; Grafton brick, \$13,488.72; gutters, \$12,937.60; asphalt block, \$2.40 sq. yd.; amiesite, \$1.60; asphalt concrete on a 5-in. concrete base, \$1.49 sq. yd. without bond. National Paving Co., Scranton—Bituminous earth, \$1.14 sq. yd.; total bid, \$6,926.64; brick gutters, 40 cts. lin. ft.; resetting curb, 24 cts.; replacing curb, 55 cts. Luzerne and Wyoming Aves., same rates. Charles Eastburn, Wardley, Pa.—Amiesite, \$1.27, without bond; resetting curb, 30 cts.; replacing curb, 65 cts. Luzerne and Wyoming Aves., same rates. Union Paving Co., Schenectady, N. Y.—Sheet asphalt, \$1.35; asphalt on concrete base, \$1.65; resetting curb, 80 cts.; replacing curb, \$1. Wyoming and Luzerne Aves., same rate. State Paving Co., Wilkes-Barre—Exeter and Bridge Sts., brick, \$2.37 sq. yd.; Toronto or Mack brick, sheet asphalt, \$2.01; asphalt block, \$2.29; bituminous macadam, 73 cts., penetration method; mixing method, 88 cts.; resetting curb, 45 cts.; replacing curb, 70 cts.; gutters, \$1,057.40; asphalt concrete, \$1.15. Wyoming and Luzerne Aves., same rates. Warner-Quinlan Co.—Sheet asphalt, 5-year guarantee, \$1.74 sq. yd.; 10-year guarantee, \$1.85; bituminous macadam, 74 cts., penetration method, mixing method, \$1.19; asphalt, concrete, \$1.39; curb reset, 35 cts.; replacing gutters, 80 cts.; gutters, \$1.13. Luzerne and Wyoming Aves., same rates. Contracts will be awarded shortly.

St. Marys, Pa.—The arrangements for oiling of number of streets leading to business section are now completed and oil will probably be placed on streets within the week.

Providence, R. I.—In order that all work on laying out of new streets may not be held up until advent of new fiscal year, Oct. 1, board of aldermen have passed resolution transferring to highway appropriation, which is now exhausted, sum of \$10,000 from reserve fund.

Bristol, Tenn.—On their second and final reading, two ordinances authorizing issuance of \$13,500 worth of bonds for building of concrete streets in Holston Heights Improvement District were passed by Board of Mayor and Commissioners of Bristol, Tenn., and will become effective in 17 days.

Chattanooga, Tenn.—Special commission appointed by County Court had advertised for bids for improvement of McCallie Ave., to be opened May 31. On that date, however, all bids were returned to contractors and work turned over to highway commission of Hamilton County, who have decided to do this work by forces employed directly by them. There will be 1,163 ft. of 21-in. and 24-in. storm water pipe sewer to be laid and 6,665 sq. yds. reinforced concrete pavement. L. B. Bryan is Co. Engr.

Elizabethton, Tenn.—The first Monday

in July an election will be held in Carter County for purpose of voting on proposition to issue \$360,000 in road bonds.

Maynardville, Tenn.—By practically unanimous vote, over 200 Union county taxpayers agreed to ask county court to sell \$100,000 bond issue authorized by last legislature for road purposes.

Beaumont, Tex.—Election has resulted in favor of issuing paving bonds in sum of \$85,000.

Dallas, Tex.—On recommendation of Street Commissioner Otto H. Lang, Board of City Commissioners decided to try repairing its own paving. City will try plan on Elm St., between Central Railroad and Crowdus St. All former action with respect to letting contract for work was revoked. Commissioner Lang estimates city can do job for \$2,500, exactly one-half amount of best bid received.

Galveston, Tex.—A bid from Magnolia Petroleum Co. of 3½ cts. per gal. on 50,000 gals. of oil for use on streets has been opened, as were bids on construction of concrete drain and vitrified pipe sewer in alleys from 28th to 29th Sts. between Aves. D and E and C and D. All bids were referred to Commissioner Sappington for tabulation and report.

Seymour, Tex.—The sidewalk election held here carried by majority of 2 to 1. This will enable City Council to order construction of sidewalks and charge same against abutting property owners.

Sherman, Tex.—The Sherman Chamber of Commerce has raised \$1,000 through contributions from business men of city with which to assist in building gravel road from Howe to Farmington by way of Pleasant Valley schoolhouse community, the people of latter neighborhood having raised balance of money.

Ogden, Utah.—New ideas as to road building will be put into effect in improving about two miles of Wilson district state road, according to Moroni Skeen, Weber County commissioner, who adds that road work may begin within a few days. Commission, he says, plans to use rock taken from Weber River bottom near Wilson. When this is thoroughly rolled a heavy grade of tarvia will be added. Commissioner asserts resulting surface should be as lasting as concrete, but having flexibility of asphalt.

Ogden, Utah.—County Board of Commissioners has been advised that county will be required to appropriate \$4,464.27 for state road purposes. This amount will be duplicated by State Road Commission, making \$8,928.54 for state road building and improvement. This amount, in connection with regular two-mill tax for road purposes on the taxable property of county, which is valued at about \$21,000,000, will furnish about \$51,000 for road purposes in Weber county during ensuing year. It has been decided that repairs shall be made on state roads passing through Riverdale, Wilson, Taylor and West Weber districts. Other parts of two state roads in the county will also be given attention.

Everett, Wash.—Bids on three road projects are called by resolutions of county commissioners which have been adopted. Permanent highway No. 18 is the resurfacing of the road from the city limits of Everett to Mukilteo. The plans for this work were yesterday approved by the state highway commission.

Olympia, Wash.—W. R. Roy, state highway commissioner, has announced that plans for construction of 5½ miles on highway between Alderton and Orting have been sent back for changes as highway department declines to approve construction of hard surface roads in that vicinity unless there is a 5½-in. concrete base.

CONTRACTS AWARDED.

Huntington Beach, Cal.—City trustees have awarded contract for improving Huntington Ave. to G. A. Constantine, secretary-treasurer of O. C. Construction Co., of Ocean Park.

Pasadena, Cal.—For improvement of Wilson Ave., to Andrew Holloway, at following bid: Paving, per sq. ft., 6 1-4 cts.; sidewalk per sq. ft., 8 1-4 cts.; grading per lin. ft., 37½ cts.; curb per lin. ft., 24 cts.; gutter per sq. ft., 12½ cts.

San Diego, Cal.—The Pioneer Truck Co. has been awarded contract for surfacing boulevard extending length of Mission Beach tract.

Connecticut.—Following contracts have been awarded by Charles J. Bennett, state highway commissioner: City of Hartford, about 6,895 ft. of reinforced concrete road on Maple Ave., to Leonardo Suzion, Meriden, Conn., for approximately \$19,500. Town of Andover, about 7,300 ft. of native stone macadam road on the Andover-Hebron Rd., to A. B. Cadwell, New Britain, Conn., for approximately \$7,669.72. Town of Somers, about 3,198 ft. of native stone macadam road on the Stafford Rd., to A. D. Bridges Sons, Inc., for approximately \$5,033.35. Town of Milford, about \$12,015 ft. of bituminous macadam road on the New Haven Turnpike, to Robert D. Daley Co., New Haven, Conn., for approximately \$18,479.20.

Wilmington, Del.—Street and sewer department has let contract for 100,000 sq. yds. of street paving and curbing to Topeka Paving Co., Inc., of Brooklyn, N. Y., exclusive of 4,000 yds. of stone block paving which successful bidder did not submit figures for.

Bedford, Ind.—The Lawrence County Commissioners have let contract for the building of Springville and Terre Haute state gravel roads through this county to Joseph Quinby, of Bloomfield, for \$5,840.

Crawfordsville, Ind.—For concrete and brick paving to Wm. M. Mahoney, Lafayette, Ind., at total bid of \$29,963.

Fort Wayne, Ind.—The Brooks Construction Co. was given two alleys and the C. E. Moeller Co. one, all of them to be paved with concrete.

Fort Wayne, Ind.—Contract for paving Main St. with creosoted wood block to Brooks Construction Co. at \$95,000.

Jeffersonville, Ind.—For macadam paving to Robert Grayson, Jeffersonville, at \$8,000.

Noblesville, Ind.—County Commissioners have awarded contract for construction of Rooker Blvd. to A. E. Betz or Frankfort for \$45,900. Other bids submitted were as follows: Geo. T. Miller, Lebanon, \$46,887; Kernode, Dale & Fullwidner, Lebanon, \$49,990; Ewing Shields, Greencastle, \$51,199; C. M. Kirkpatrick, Greenfield, \$47,900; George Haverstick, Noblesville, \$48,760; C. F. McGrevy, Logansport, \$53,337.

Portland, Ind.—For construction of crushed stone pavement, to Wilson P. Spade, Portland, at \$2,950.

Rochester, Ind.—For street paving, to Martin McHale, Logansport, Ind., at \$3,628.

South Bend, Ind.—H. N. Barnes has been awarded contract for pavement of Tecumseh Ave. at meeting of Board of Public Works. The pavement of thoroughfare from Wakawa to Pokagon Sts. will cost \$5,181.29. Other contracts let are as follows. Grade, curb, walk and gravel roadway on East Dayton St., from Marine to Leet Sts., to H. N. Barnes; price, \$735.30; macadamizing of Fulton Court to Hoban & Roach, price, \$312.15; macadamizing of Hamden Court to Hoban & Roach, price \$308.85.

Burlington, Ia.—For brick and concrete pavement of alley No. 3, from Washington to Columbia Sts., to George Peterson, Burlington, at \$1.68 per sq. yd., and for alley No. 3, from Division to Elm St., at 97½ cts. per sq. yd. for concrete.

Arkansas City, Kan.—For 12,000 sq. yds. 3-in. brick pavement with Texas asphalt filler on 4-in. concrete, to Chas. Bessler Const. Co., Winfield, Kan., at \$1.81 per sq. yd.

Winfield, Kan.—For construction of 8 blocks brick paving on concrete foundation to Chas. T. Besler Contracting Co., Winfield, Kan., at \$1.72 per sq. yd., and 34 cts. per cu. yd. excavation.

Jeffersonville, Ky.—At monthly meeting of County Commissioners contracts for improving Louis Herman road, in Silver Creek township and the John H. Boyd road, in Washington township, were let to Robert Grayson. The bids on the Herman road were: Robert Grayson, \$4,124; Weber & Pass, \$4,400; Martin F. O'Neill, \$4,498; W. O. Sweeny Co., \$4,945. For the Boyd road the bids were: Robert Grayson, \$6,795; Martin F. O'Neill, \$6,987; Weber & Pass, \$7,267.40; W. O. Sweeny Co., \$7,445.

Maysville, Ky.—Brick street contracts to amount of over \$10,000 have been let by City Council. Rue & Schmitz, of Covington, and Farrow & Co., of this city, were successful bidders on seven streets.

Maysville, Ky.—Brick street contracts to amount of \$10,000 have been let by City Council. Rue & Schmitz of Covington, and Farrow & Co., of this city, were successful bidders.

Alexandria, La.—For construction of 12,000 sq. yds. Tarvia pavement, following bids were received: Gailey & Clark, Alexandria, La., at \$1.33 per sq. yd.; F. T. Constant, Alexandria, \$1.38½ per sq. yd., and J. N. McLeod, Jackson, Miss., at \$1.39 per sq. yd.

Alexandria, La.—For vitrified brick pavements on Belton Ave. and Lee St. to A. R. Young & Co., Lawrence, Kan., and for gravel pavements on Eighth St., to same firm.

Baltimore, Md.—For paving with sheet asphalt, Lombard St., from Exeter to Washington, and Washington St., from water front to Fayette, to Patrick Flanagan & Sons at \$53,790.

Bay City, Mich.—Following bids have been received for furnishing materials for and constructing a 30-ft. permanent pavement on Madison Ave., from the south line of Columbus Ave. to the north line of Kosciusko Ave.: Vitrified Brick Pavement—Williston Const. Co. (Puritan brick), \$27,571.07; Williston Const. Co. (Bay City brick), \$26,835.17; P. Ryan (kind of brick not specified), \$25,-

953.77; Peter McAdams (kind of brick not specified), \$28,384.34. Bitulithic Pavement—Cleveland Trinidad Paving Co., \$27,086.13. Asphalt Block Pavement—Asphalt Block Pavement Co., \$31,-

687.22. Tarvia Macadam Pavement—Peter McAdams, \$23,723.64. Asphalt Concrete Pavement—Cleveland Trinidad Paving Co. (Topeka method), \$22,364.10; Cleveland Trinidad Paving Co. (standard), \$24,817.10; Johnson Const. Co., \$22,-

891.05. Sheet Asphalt Pavement—Cleveland Trinidad Paving Co., \$24,878.43; Johnson Const. Co., \$25,098.35; The S. S. Saxton Co., \$25,544.80; The Grace Const. & Supply Co., \$25,393.89. Concrete Pavement—P. Ryan, \$20,925.10. Contract was awarded to Cleveland Trinidad Paving Co. for sheet asphalt at \$24,878.43. Also bids for furnishing materials for and constructing a 30-ft. permanent pavement on Madison Ave., from the south line of Third St. to the north line of Sixth St. Vit. Brick Pavement—Williston Const. Co. (Puritan brick), \$9,055.36; Williston Const. Co. (Bay City brick), \$8,814.58; P. Ryan (kind of brick not specified), \$8,851.31. Bitulithic Pavement—The Cleveland Trinidad Pavement Co., \$8,765.77. Asphalt Block Pavement—Asphalt Block Pavement Co., \$10,361.18.

Asphalt Concrete Pavement—The Cleveland Trinidad Paving Co. (Topeka method), \$7,220.76; The Cleveland Trinidad Paving Co. (standard), \$8,023.36; Johnson Const. Co., \$7,519.56. Sheet Asphalt Pavement—The Cleveland Trinidad Paving Co., \$8,043.43; Johnson Const. Co., \$8,241.46; The S. S. Saxton Co., \$8,410.98; The Grace Const. & Supply Co., \$8,353.58. Concrete Pavement—P. Ryan, \$6,614.94. Contract was awarded to Cleveland Trinidad Paving Co. for sheet asphalt at \$8,043.43. Other contracts were awarded as follows: Concrete pavement on John St., to P. Ryan at \$6,383.96; asphalt pavement on Johnson St., to Cleveland Trinidad Paving Co., at \$4,722.35; vitrified brick pavement (Bay City brick) on Lafayette, Michigan and Kosciusko Aves., to W. Williston Const. Co. at \$25,040.51; concrete pavement on Germania Ave., to Gateson Bros. at \$12,011.98, and concrete pavement on Main St., to Bateson Bros. at \$3,047.82.

Bay City, Mich.—For sheet asphalt pavement on Madison Ave., from Sixth St. to Columbus Ave., to Cleveland Trinidad Paving Co., \$21,118.98.

Shelby, Mich.—For construction of gravel pavement to Chas. Moberly, Shelbyville, at \$7,785.

Ypsilanti, Mich.—For construction of concrete curbs following bids were received: Clyde Gass, Ypsilanti, Mich., 25 cts. per lin. ft., and Allen Russ, Ypsilanti, at 26 cts. per lin. ft.

Duluth, Minn.—Secretary Culver of works division has announced bids on paving 6th St. from 15th to 18th Aves. east, and 16th Ave. east, from 6th to 8th St. and East 1st St. to Congdon park. P. McDonnell submitted lowest bid on former job, but it is incomplete, and as result August Bodin & Son are lowest bidders. The bids on asphalt and bituminous cement follow: P. McDonald, \$19,418.60; August Bodin & Son, \$20,-423.10; George King, \$21,295.18. Bids on the East 1st St. job follow: Bitulithic—General Contracting Co. of Minneapolis,

\$24,985.67; George King, \$26,197.53; asphalt—George R. King, \$26,197.53, and P. McDonnell, \$24,786.80.

Duluth, Minn.—Secretary Culver of works division has announced figures in connection with Commonwealth Ave. pavement bids. Rogers & McLean, it is understood, will be awarded the contract for paving thoroughfare with brick. The bids follow: Erick—Rogers & McLean, \$38,728; E. W. Coons Co., \$39,335.20; Olson & Johnson, \$40,809.70; D. H. Clough & Co., \$39,713.85; John Runquist, \$40,936.34; and Preston & Nelson, \$42,213.35; bitulithic—D. H. Clough & Co., \$37,308.85, and E. W. Coons Co., \$38,191.20.

Duluth, Minn.—Rogers & McLean have submitted lowest bid on paving Commonwealth Ave. with brick.

Eveleth, Minn.—For 600 yds. bitulithic and 5,000 yds. creosoted block pavement, to Lawrence McCann Co., Eveleth, Minn., at \$2.50 per sq. yd. bitulithic and \$2.55 creosoted blocks, and 60 cts. per cu. yd. for excavation.

St. Paul, Minn.—City purchasing committee has awarded to Pierce Oil Corporation of St. Louis contract for 276½ tons of asphalt, to be used in paving of Isabel, Congress, Concord, Plum and East Third Sts. and Summit and Dayton Aves., the company's bid being \$12.73.

Vicksburg, Miss.—For construction of about one mile sidewalks and curbs to V. L. Zollinger at 10 cts. per sq. ft. for sidewalks and 75 cts. per lin. ft. for new curbs.

Joplin, Mo.—For construction of 2,005 sq. yds. wood blocks on concrete base to E. O. Moats, Joplin, Mo., at \$1.85 per sq. yd. and excavation (base) at \$2.70.

Clifton Springs, N. Y.—The improved road to be built through this village will be constructed by Thomas F. Murray, of Le Roy, the low bidder. His bid was \$17,306. Five bids were received, highest being \$18,816.50. Length of road 1.38 miles, and it will connect Phelps-Clifton Springs Rd. with the Clifton Springs-Manchester state road. Road is to be bituminous pavement.

Rochester, N. Y.—The Rochester Vulcanite Co. was low bidder on asphalt paving for Winton Rd., on which bids were opened by board of contract and supply. The company's bid on work was \$49,444.

Watertown, N. Y.—Contract for oiling Clayton-Alexandria Bay Blvd. has been awarded to Richard Hopkins, of Troy.

Larimore, N. D.—For construction of sidewalks to Chris Lysne, Larimore.

Arlington, O.—For construction of 6,209 sq. yds. brick paving on concrete foundation and 3,300 cu. yds. excavation to Ruigwald & Sons Co., Chillicothe, O., at 99 cts. per sq. yd. for paving and 45 cts. for excavation; total bid, \$11,213.80.

Cincinnati, O.—Contractor C. J. Helm has been awarded contract by Campbell County Fiscal Court to reconstruct Dayton-Ft. Thomas pike at bid of \$8,489. Work will be completed within two months.

Dayton, O.—Tabulation of bids submitted on various city improvements has been completed, showing following bidders to have submitted lowest proposals: Paving of Summers St., from Salem to Old Orchard Ave., Clifton Hoolihan at his bid of \$14,690.40; paving of Wyoming St., from Wayne Ave. to Alberta St., to Bigler Bros., at their bid of \$19,895.15; Longworth St., from Washington St. to Carrie St., to Bigler Bros., at their bid of \$6,990; Norman Ave., from Main St. to Darr Ave., to Bigler Bros., at their bid of \$11,977; alley east of Garfield St., to W. C. Kershner, at his bid of \$350.14.

Dayton, O.—T. D. Eichelberger & Sons have been awarded contract for furnishing cement for city in sum of \$2,400. Eight other proposals were submitted and all were the same.

Dayton, O.—Contracts for improvements for which bids were opened several days ago in service department's office as follows: West Third St. paving, W. J. Kerman & Co., \$13,820.50; Longworth St. paving, Bigler Bros., \$6,999; Summers Ave. paving, Clifton Hoolihan, \$14,690.40; Norman Ave. paving, Bigler Bros., \$11,977; Highland and St. Charles Ave. sanitary sewer, Shafor & Dill, \$653.60; Delaware Ave. sanitary sewer, W. C. Kershner, \$467.50; Neal Ave. and Squirrel road, sanitary sewer, Boyd & Cook, \$615.50; removal of sheds and opening of Stewart St., H. G. Collins, \$681; Stewart St. bridge over the canal, Geigler & Finke, \$1,440.

Struthers, O.—For construction of brick pavement on concrete foundation

on Board St. to M. P. Connelly & Son, Youngstown, O., at \$8,726, and Poland Ave. to James Dejute, Niles, O., at \$4,178.25. Jonah Richards is Clerk.

Warren, O.—The State Highway Commission has awarded contract for building two sections of inter-county highway located in Bloomfield township to Kennedy Warner Co. of Medina County, on bids of \$6,994 and \$13,938. Work will start at once so as to be completed by fall. Construction will be water bound slag construction.

Eugene, Ore.—Contract for construction of stretch of road at Bray Point, on coast, has been signed by Ole Soleim, the successful bidder, and members of county court. The contractor gave bond of \$788.21, which is half of the contract figure.

Johnstown, Pa.—Council has awarded contracts for 1915 paving. An alternative proposition by Central Construction & Supply Co., of Harrisburg, for asphalt paving of Somerset and Napoleon Sts. was accepted. Instead of resurfacing over cobble paving, cobble will be torn out and crushed, and street will be regraded. The cost of this will be \$1.70 per sq. yd., as against \$1.25 for resurfacing. Council has selected Mack brick for all brick paving, and standard grout filler is specified for all. The prices quoted below are for grading, filling and paving, per sq. yd. John Best & Son—Central Ave., \$2.029; Park Ave., \$2.061; Southmont Ave., \$2.177; Grant St., \$2.078. All with Mack brick. Ressler & Robertson—Linton St., \$1.987; Cypress Ave., \$1.975. Mack brick, Baker-Owen Construction Co.—Seigh Pl., \$2.111. Mack brick, Central Construction Supply Co., of Harrisburg—Somerset and Napoleon Sts., asphalt, \$1.70; Bausman Alley, resurface, \$1.25; Cypress Ave., asphalt, \$2.049; Coleman Ave., asphalt, \$2.047; Dibert St., asphalt, \$2.044; Power St., asphalt, \$2.052.

Titusville, Pa.—County Commissioners have awarded contract for creosote block floor on Brown St. bridge at Titusville to Corry Bridge & Supply Co., for \$1,497. This contract also calls for cleaning and painting of under work of bridge. This contract is subject to approval of the court. The span is 180 ft. Rogers Bros., of Albion, secured superstructure contract for 80-ft. bridge over Pine Creek, their bid being \$1,465. Frank Shunk, of Meadville, was given contract for excavating for abutments at Pine Creek bridge at 30 cts. a sq. yd., and for concrete work abutments and floor at \$4.10 a yd. county to furnish gravel delivered on the ground.

Wilkes-Barre, Pa.—Contract to repair county road from Courtdale Borough to Hillside Inn on Kingston and Dallas turnpike has been awarded by County Commissioners to Charles T. Eastburg Co. of Yardley, Pa., the lowest of six bidders. The successful firm's bid was \$6,510. The other bids were Davis & Parry, \$7,396; M. J. Malloy, \$7,557; Bolton G. Coon, \$7,464; H. R. Coronway, \$7,053; Harry L. Brady, \$7,910.

Woonsocket, R. I.—Board of Aldermen has awarded contracts for paving with granite blocks under Hassan treatment of South Main, Clinton and West School Sts., to Simpson Bros. Corporation, of Boston. Successful bids were \$23,420.10 for South Main St., \$42,100.50 for Clinton St., and \$15,675.50 for West School St. There were four other bidders.

Clarksburg, W. Va.—For 14,000 sq. yds. brick concrete pavement, and 7,000 cu. yds. earth excavation to Furgerson & Tolbert, Shimston at \$1.96 per sq. yd. for paving and 44c. for excavation.

Castle Rock, Wash.—Bids that ran from \$12,092 to \$13,656, were opened for improvement of principal business streets, and contract awarded to Albers & Son, of Chehalis, who submitted lowest bid. It is expected that the improvement work will begin within a week.

Everett, Wash.—Another street improvement will soon be under way in Everett, providing more work for laborers. The improvement in question calls for grading and asphalt paving of Cedar St. from Everett Ave. north a distance of about 300 ft. to 26th St. Two bids were submitted and opened by City Commissioners. The Olympic Paving Co.'s tender was \$6,267, while Washington Paving Co. offered to perform contract for \$5,978. Council awarded contract to Washington Paving Co. Engineer Hoover's estimate for the Cedar St. work was \$6,400.

Olympia, Wash.—State Highway Department has awarded three southwestern Washington highway contracts as follows: Pacific highway, Nisqually to

Lacey in Thurston county, to L. H. Goering of Seattle for \$16,377.80; Pacific highway, Toledo southerly, to Andrew & Homer of Portland for \$18,748.10; National Park highway approaches to Mashell bridge in Pierce county to Kindle & Appler of Eatonville for \$17,355. There were 38 bidders for the three pieces of work, competition being keen. Contracts are lower than expected by highway department. The Nisqually-Lacy work will eliminate Nisqually hill between Olympia and Tacoma.

Seattle, Wash.—Lowest bidder for paving of Tenth Ave. was F. McLellan at \$204,687.01.

Clintonville, Wis.—For construction of 10,000 sq. yds. reinforced concrete pavement to C. Peterson Con. Co., Kenosha, Wis., at \$1.39 per sq. yd., or total of \$16,748.54.

Hortonville, Wis.—For excavating and building highway to Blake Construction Co., Appleton, Wis., at \$1,225.

Lancaster, Wis.—By Grant county for 12,600 cu. yds. earth excavation to Welsh & Udelhoven, Potosi, Wis., at 32 cts. per cu. yd.

Milwaukee, Wis.—By county for 28,230 sq. yds. concrete pavement and 12,200 cu. yds. clay excavation to Jensen-Jensen Co., Chicago, at total bid of \$22,886.

Niagara Falls, Ont., Can.—C. L. Gonder has been awarded contracts for all concrete sidewalks to be constructed in township this year by Stamford council. His bid was 11¾ cts. a ft. for stone-filled walk. His bid on curbing was 10 cts. a lin. ft.

SEWERAGE

Los Angeles, Cal.—Ordinances have been adopted for construction of sewers in various streets.

Sacramento, Cal.—City Treasurer Biener has reported to city commission that \$170,700 worth of sewer bonds had been sold to Capital National Bank.

Sparta, Ill.—Board of Local Improvements will shortly call for bids for installation of sewerage system, to cost, with water works about \$60,000.

Richmond, Ind.—An emergency storm sewer will be installed in North Sixth St. a block and a half north of Main St.

Clinton, Ia.—July 15 is date fixed by Council for consideration of proposed resolution for construction of sewers in Fourth Ward, and hearing of objections to the improvement.

Keokuk, Ia.—Construction of sanitary sewer in Kilbourne's addition and of three blocks of concrete paving are called for in resolutions of necessity for public improvements city council expected to pass. The sewer is to start from the end of the present storm sewer at 19th and Des Moines, in Des Moines St. south to the alley, thence westerly through blocks 49, 56 and 58 to the easterly line of Randall's addition, thence northerly in the private alley in Randall's addition to southerly line of Des Moines. Pipe is to be of 10 and 8-in. size.

Lexington, Ky.—A committee to select a consulting engineer to pave the way for the construction of disposal plant has been appointed at conference held at City Hall by City Commissioners, members of Board of Health.

Boston, Mass.—Mayor has approved order of Board of Street Commissioners in taking of four parcels of land in West Roxbury for sewerage works. The works to be constructed are as follows: In Metropolitan terrace about 222 lin. ft. of 8-in. pipe, sanitary sewer, and about 222 lin. ft. of 10-in. pipe surface drain; in private land, between Metropolitan terrace and the junction of Augustus Ave. and Ethel St., about 90 lin. ft. of 10-in. pipe surface drain and about 20 ft. of 15-in. pipe surface drain.

Boston, Mass.—Following sewer work has been approved at the Mayor's office. Work in Hyde Park, Dorchester and West Roxbury was approved at cost of \$18,460. Many of demands were first made more than five years ago. Work to be performed is as follows: Rosewood St., between Oakland St. and Randolph Rd., Dorchester; a sanitary sewer of earthen pipe, a surface drain of earthen pipe and 6 catch-basins, at a cost of \$9,740. Randolph Rd., between Harmon St. and Rock Rd., Dorchester; a sanitary sewer of earthen pipe, at a cost of \$3,600. Rock Rd., from Randolph Rd. about 260 ft. southwesterly, Dorchester; a sanitary sewer of earthen pipe, at a cost of \$1,315. Oakland St., between River St. and Rexford St., Dorchester; 6 catch-basins and connections, at a cost of \$1,050. Private land, between Paine St.,

northerly and westerly to the Canterbury Branch of Stony Brook, and across Paine St.; one catch-basin, 460 ft. of pipe surface drain and about 250 ft. of open channel, West Roxbury, at a cost of \$1,390. Erie St., between the Neponset River and Vose Ave., Hyde Park, a surface drain of earthen pipe, Hyde Park, at a cost of \$1,365.

Pittsfield, Mass.—Board of Public Works has voted to lay 400 ft. of sewer main in Euclid Ave. and 300 ft. in Pomeroy Ave.

Gulfport, Miss.—Although a written protest of about 200 taxpayers and voters has been received, the Board of Mayor and Commissioners has ordered proposed \$15,000 bond issue for sewer and fire improvements sold.

St. Joseph, Mo.—Ordinance has been passed to provide for construction of sewers in portion of sewer district No. 131, located along the alley first north of Union St. from 27th St. to Noyes Blvd. and along Noyes Blvd. from the alley first north of Union St. (West) to north line of district.

Trenton, Mo.—City Clerk will receive sealed bids up to 8 p. m., June 16, for following storm sewer work: 507 lin. ft. 48-in. reinforced concrete sewer 3½-ft. cut; 235 lin. ft. 5-ft. cut; 353 lin. ft. 36-in. reinforced concrete sewer 3-ft. cut; 269 lin. ft. 24-in. plain concrete sewer 3½-ft. and 111 lin. ft. 18-in. plain concrete sewer 3-ft. cut. J. H. Flesher is City Clerk and M. H. Mooney is City Engineer.

Ashbury Park, N. J.—City Commissioners are considering placing of outlet pipe for sewage system at Eighth Ave.

Newark, N. J.—Board of Public Works has asked for appropriation of \$70,000 for sewers and drainage, \$205,000 for scavenger, and \$6,000 for house sewer connections.

Pitman, N. J.—Borough Council is considering question of submitting to voters proposition to issue sewer system bonds in sum of \$91,000.

Pleasantville, N. J.—Pleasantville council has accepted offer of M. M. Freeman, bankers and bond brokers, of 421 Chestnut St., Philadelphia, to finance the proposed system for the borough to the extent of \$100,000 "more or less." The question of whether or not the people desire the sewerage system will be decided at an election to be held in November.

Rahway, N. J.—Ordinance has been passed to construct and build 8-in. vitrified tile pipe sewer on westerly side of Lawrence St., from or near southwesterly side of Grand St. to connect with sewer now laid in Monroe St.

Albany, N. Y.—Ordinance has been passed for laying of sewer under carriage-way to Ethelbert St. from Broadway to North Pearl St.

East Syracuse, N. Y.—Election will be held in near future to vote on question of issuing sewerage system bonds in sum of \$35,000.

Herkimer, N. Y.—An issue of \$30,000 worth of sewer bonds has been sold at municipal building, the First National Bank of this village being successful bidder at public auction.

Syracuse, N. Y.—Board of Estimate and Apportionment has approved bond issue of \$200,000 for work contemplated by intercepting sewer commission. Approval was also given to bond issue for general local improvements, which amount to \$356,500.

Chillicothe, O.—City engineer has submitted estimates to City Council for following improvements: A 36 and 40-in. storm water sewer on Western Ave., to connect Honey Creek storm sewer, estimated cost \$4,543, and an 8-in. sanitary sewer lateral in Western Ave., estimated cost \$2,020. H. M. Redd is City Engr.

Cincinnati, O.—Ordinance has been adopted for improvement of Gladstone Ave. by construction of sewers.

Geneva, O.—Village engineer has been authorized to prepare plans and specifications for Blaine and Orchard St. sewers by two different routes, one having outlet across private property meeting Cedar St. at Beach St.; other, by way of Eastwood St., running parallel with Eastwood St. sewer until reaching low level to join that sewer.

Marion, O.—Ordinance has been passed to proceed with construction of sanitary sewer and storm-water sewer from Sllver St. north to Garden City pike on Lee St.

Marietta, O.—Ordinance has been adopted to proceed with improvement of Greene St. from Fourth St. to Fifth St. by constructing a sanitary sewer.

Middletown, O.—Ordinances have been

passed for construction of sewers in various streets.

Niles, O.—E. G. Bradbury, a consulting engineer of Columbus, is expected in Niles to confer with City Engineer Breeze on plans for street, trunk and intercepting sewers. A most elaborate set of plans has been drawn up for drainage of entire city. All sewers eventually are to be connected up and carried to site of proposed sewage disposal plant, which will be constructed following building of new sewers and extension of present ones. Among important sewerage projects is that for trunk sewer along Mosquito creek to Mahoning River, relieving creek from its present discharge from sewers in northern and upper western sections of city and from Vienna and Robbins Aves.

Vermillion, O.—To take care of sewer work, bonds in sum of \$22,000 have been authorized and in addition, to cover cost to be assessed against property owners, bonds to amount of \$17,500 will be issued.

Chester, Pa.—Ordinance No. 2 is being considered, providing for construction of sewer on Fifth St. from Chester River, 160 ft. east of Edgmont Ave., and on Ninth St. from Flower to Engle St.

Connellsville, Pa.—South Connellsville citizens will vote on proposition to issue \$30,000 in bonds for sewer system at special election to be held on July 14.

Erie, Pa.—With his \$30,000 bond issue proposal accepted by Council, Theodore Eichhorn, superintendent of streets, is planning to start improvement work in July. The storm sewer system will receive first attention. For this improvement, \$22,500 was provided in bond ordinance. Paving will be commenced when sewers are completed at cost of \$2,500.

Johnstown, Pa.—Ordinance is being considered providing for loan of \$150,000, to be used and expended for payment of part of cost and expense of building and constructing general sanitary sewer system in city of Johnstown and providing for annual tax for payment of said loan and interest.

Williamsport, Pa.—Ordinance providing for construction of storm sewer in Franklin St., between Hughes St. and Lyon Ave., and in Menne Alley, between Franklin St. and St. Boniface St., has passed first reading.

Woonsocket, R. I.—Resolution appropriating \$22,568 for sewer construction has been referred to finance committee.

Salt Lake City, Utah.—City Commissioner has called for bids for sewer extension laterals in Douglas Park, Fremont Heights, Yale Park, College Heights and Liberty Heights, and for same class of work in west side of Canyon St. North State to Second North Sts.

St. Lambert, Que.—Election has resulted in favor of issuing trunk sewer bonds in sum of \$2,000,000.

CONTRACTS AWARDED.

Glencoe, Ill.—To Wm. Davidson, 703 Park Ave., Wilmette, Ill., at \$29,959, contract for constructing Glencoe northeast sewer system. Windes & Marsh are Village Engineers, Winnetka.

Lexington, Ky.—To C. B. McGregor, for construction of sanitary sewers on Curry Ave., Mechanic St., Ohio St., E. Fourth St., Bullock Ave. (now Cramer Ave.), Shreve Ave. and Price Ave., at following bids: On Curry Ave., from Broadway to the west end of Curry Ave., in accordance with Ordinance No. 592, with four manholes and one flush tank, at the following prices: 8-in. pipe, 53 cts. per lin. ft.; 5-in. pipe, 38 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 50 cts. each; manholes, \$30 each; flush tanks, \$50 each; rock excavation, \$5 per cu. yd.; for repaving with asphalt or brick, \$3 per sq. yd. On Mechanic St., from Upper St. to Limestone St., in accordance with Ordinance No. 627, with one manhole and one flush tank, at the following prices: 8-in. pipe, 52 cts. per lin. ft.; 5-in. pipe, 35 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 50 cts. each; Manholes, \$30 each; flush tanks, \$50 each; rock excavation, \$6 per cu. yd.; for repaving with asphalt or brick, \$3 per sq. yd. On Ohio St., from Third St. to Fourth St., in accordance with Ordinance No. 627, with two manholes, at the following prices: 8-in. pipe, 50 cts. per lin. ft.; 5-in. pipe, 35 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 50 cts. each; manholes, \$30 each; rock excavation, \$6 per cu. yd.; for repaving with asphalt or brick, \$3 per sq. yd. On E. Fourth St. from a manhole in the center of Ohio St. to Race St., in accordance with Ordinance

No. 627, with three manholes and one flush tank, at the following prices: 8-in. pipe, 52 cts. per lin. ft.; 5-in. pipe, 36 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 50 cts. each; manholes, \$30 each; flush tanks, \$50 each; rock excavation, \$6 per cu. yd. On Bullock Ave. (now Cramer Ave.), from Walton Ave. to a point near North Ashland Ave., in accordance with Ordinance No. 628, with one manhole and one flush tank, at the following prices: 8-in. pipe, 50 cts. per lin. ft.; 5-in. pipe, 34 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 50 cts. each; manholes, \$30 each; flush tanks, \$50 each; rock excavation, \$6 per cu. yd. On Bullock Ave. (now Cramer Ave.), from Ashland Ave. to a point near the east end of Bullock Ave. (now Cramer Ave.), in accordance with Ordinance No. 628, with three manholes and one flush tank, at the following prices: 8-in. pipe, 50 cts. per lin. ft.; 5-in. pipe, 32 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 50 cts. each; manholes, \$28 each; flush tanks, \$48 each; rock excavation, \$6 per cu. yd. On Shreve Ave., from a manhole in the Central Ave. main sewer to a point near the end of Shreve Ave., in accordance with Ordinance No. 628, with one manhole and one flush tank, at the following prices: 8-in. pipe, 50 cts. per lin. ft.; 5-in. pipe, 30 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 30 cts. each; manholes, \$25 each; flush tanks, \$48 each; rock excavation, \$6 per cu. yd. On Price Ave., from Belt Line Railroad to a point near W. Sixth St., in accordance with Ordinance No. 628, with three manholes and one flush tank, at the following prices: 8-in. pipe, 50 cts. per lin. ft.; 5-in. pipe, 30 cts. per lin. ft.; 5-in. Y branches on 8-in. pipe, 30 cts. each; manholes, \$28 each; flush tanks, \$48 each; rock excavation, \$6 per cu. yd. Section 2. All manholes constructed in above mentioned sewers shall be built of hardest Lexington brick, the brick to be submerged in water three minutes before laying.

Fitchburg, Mass.—To T. A. Cassidy, contract for Bemis road siphon connection with main sewer, requiring about 2,600 ft. of 16-in. cast iron pipe, for \$7,253.

Struthers, O.—For construction of tile sewer to Frank Manello, Pittsburgh, Pa., at \$3,846.10.

Chester, Pa.—The contract for running outfall sewer through George M. Booth property, known as Tyler St., has been awarded to John Hanna & Sons, of Chester. There was only one other bidder, Thomas J. Robinson, of Chester, whose bid was not complete. The Hanna Co.'s bid was \$1.09 per lin. ft.; \$34 for manholes; \$2.50 per lin. ft. for cast iron 16-in. pipe; \$7 per yd. for cement work, and \$3 per cu. yd. for blasting rock.

New Brighton, Pa.—At meeting of New Brighton Council Engineer Barker presented plans and blue prints showing proposed extension of sanitary sewer system from its present terminus at mouth of Block House Run out into channel of Beaver river, at distance of about 175 ft. Councilman Coale moved that plan be accepted and bids be advertised for for doing the work.

Cleburne, Tex.—City Council has let contract for city's new \$180,000 sewer system to Hamilton Bros. of Houston at \$144,526. The highest bid was that of Keeler Bros. of St. Louis, which was \$240,877. There were nineteen bids.

Cleburne, Tex.—Contract for sewer construction has been awarded to Hamilton Bros. Houston, Tex., at following bid: 125,278 ft. 8-in. vit. sewer pipe at 18 cts.; 18,575 ft. 10-in., 25 cts.; 13,791 ft. 12-in., 40 cts.; 6,280 ft. 15-in., 60 cts.; 2,936 ft. 18-in., 85 cts.; 8,781 ft. 21-in., \$1.15; 12 ft. 8-in. cast iron pipe, 60 cts.; 60 ft. 10-in., 82.5 cts.; 24 ft. 12-in., \$1.05; 120 ft. 18-in., \$1.87; 264 ft. 21-in., \$2.25; 115,615 ft. 6-ft. trench, 12 cts.; 27,660 ft. 6 ft. to 8 ft., 25 cts.; 27,060 ft. 8 ft. to 10 ft., 29 cts.; 3,675 ft. 10 ft. to 12 ft., 40 cts.; 1,690 ft. 12 ft. to 16 ft., 88 cts.; 3,140 ft. 6-in. on 8-in. Y connections, 72 cts.; 335 ft. 6-in. on 10-in., 97 cts.; 255 ft. 6-in. on 12-in., \$1.26; 57 ft. 6-in. on 15-in., \$1.81; 35 ft. 6-in. on 18-in., \$2.80; 286 manholes, \$49; 50 flush tanks, \$75; 52 lamp holes, \$6; 11,900 cu. yds. rock excavation, 151.5 cu. yds. Portland cement, \$11; lumber, \$30; sewage disposal plant complete, \$28,194; totals, \$144,527; 5,200 cu. yds. earth excavation, 25 cts.; 450 cu. yds. rock excavation, \$1.25; 917 cu. yds. concrete, \$13; 2,935 cu. yds. filter stone, \$2; 21 cu. yds. gravel, \$2; 45 cu. yds. filter sand, \$2; 39,500 lbs. steel reinforcement, 4 cts.; 800 lbs. structural steel, 3

cts.; 450 ft. 3-in. galv. iron pipe, 20 cts.; 16,700 ft. 6-in. split tile, 5 cts.; 245 ft. 6-in. drain tile, 6 cts.; 64 ft. 6-in. vitrified sewer pipe, 15 cts.; 850 ft. 8-in., 20 cts.; 180 10-in., 25 cts.; 24 ft. 12-in., 38 cts.; 374 ft. 15-in., 50 cts.; 210 ft. 18-in., 80 cts.; 10 ft. 21-in., \$1.10; 172 ft. 24-in., \$1.25; 208 ft. 15-in. split pipe, 50 cts.; 400 ft. excavation pipe trenches, 30 cts.; 112 sprinkling nozzles, \$2.50. Totals of next four lowest bids are as follows: Brown Bros., Kansas City, Mo., \$148,818; Bash & Jones, Joplin, Mo., \$151,187; Wm. F. Riley, St. Louis, Mo., \$152,468; and Roach-Manigan, Ft. Worth, Tex., \$155,-296. Burns & McDonnell, Kansas City, Mo., are Engrs.

Seattle, Wash.—Contract has been awarded to A. Arnoldo, at \$2,783.90 for sewers in Tenth Ave., N. W.

Barbaboo, Wis.—To Sweeney Bros., contract for 3,200 ft. 8 to 18-ft. trench, 2,700 ft. 48-in. Meriwether reinforced concrete pipe and 465 ft. 24-in. vitrified pipe, for storm sewer. Estimated cost, \$13,000.

Racine, Wis.—Three sewer contracts have been awarded at regular weekly meeting of board of public works. Patrick Gayahan was awarded contracts for constructing sewers in Forest St., from Yout St. to Rapids Drive, and in Arthur Ave. from Washington Ave. to Thirteenth St. P. G. Pedersen received job of laying sewer in Hayes Ave. from Washington Ave to Thirteenth St.

WATER SUPPLY

Scottsboro, Ala.—Town will vote in near future on question of issuing water works bonds in sum of \$5,000.

Pasadena, Cal.—At cost of about \$1,500, a chlorine plant for purification of water is to be erected in Arroyo Seco about Devil's gate. Samuel B. Morris, chief engineer of water department, and Kenneth Shibley of Los Angeles, sanitation expert with company which put in plant for Los Angeles near Universal City will select a site.

Stockton, Cal.—Plans and specifications for new pumping station for new park in northwestern part of the town, to be used for furnishing water for the park, have been approved.

Pensacola, Fla.—The general city election has resulted in bond issue for \$30,000, carrying by majority of about 3 to 1. The issue is small one and is for purpose of erecting \$20,000 building at water-works plant, as well as \$10,000 truck house.

Waukegan, Ill.—Ira H. Jewell, of Jewell Water Improvement Co., of Chicago, is in conference with Mayor William W. Pearce and has outlined plans for installation of filtration plant which would take care of Waukegan's needs in this regard. Mr. Jewell informed Mayor Pearce that filter plant for Waukegan with capacity of four million gallons daily would cost about \$65,000. A plant to provide for eight million gallons capacity would cost about \$90,000. He said that if city wished to construct plant itself that he would charge merely for plans.

Saginaw, Mich.—New water works system is being considered.

Robbinsdale, Minn.—Village Council has authorized issuance of water works bonds in sum of \$15,000.

Penack, N. J.—Resolution has been introduced in Town Council providing that question of issuing water bonds in sum of \$55,000 be submitted to voters at election to be held early in July.

Trenton, N. J.—State Board of Public Utility Commissioners has approved acquisition of Wildwood Water Works Co. by city of Wildwood. Board was asked to allow purchase so that city could have its own water plant. Purchase price was \$554,000 exclusive of accounts receivable.

Lockport, N. Y.—Three proposals have been received by aldermen from local contractors below City Engineer Frehsee's estimate of \$18,000 for construction of new 12-in. water main in Market St. and new 10-in. water main in Mill St. from Exchange to plant of Fiber Corporation and one other bid was also received from outside firm, which exceeded the estimate. The bids were as follows: C. B. Whitmore Co., \$16,660; F. J. Le Valley, \$16,600; C. N. Stainthorpe & Co., \$16,990; Henry W. Golden & Son, Troy, N. Y., \$18,325. The bids were considered and referred to street committee and water board for their approval or rejection.

Mount Kisco, N. Y.—Election has resulted in favor of issuing water main extension bonds in sum of \$12,000. Geo. B. Cranston is Village Clerk.

Attica, O.—Election will be held July

12 to vote on question of issuing water works plant bonds in sum of \$10,000.

Middletown, O.—By third reading of resolution, passing legislation for water works bond election to be held at fall primaries, it has been determined election will be held on Tuesday, Aug. 10, date set for primaries under new law. Passing of this resolution opens way for final legislation by way of proclamation and advertising date for voting on \$120,000 bond issue.

Sebring, O.—Matter of purchasing Sebring water system will be up to voters of coming primary election in August. Proposition which will be fully explained in advance of election at meeting to be held soon, is to bond village of Sebring to extent of about \$100,000 to purchase the Sebring water system. If bond issue carries a filtration plant will also be built and sum to build and maintain this will be included in bond issue.

Youngstown, O.—Another bond issue of \$100,000 to complete city water works improvements has been agreed upon at meeting of finance committee of City Council Tuesday night at which budget of water works for 1916 came up for discussion.

Youngstown, O.—Board of control has thrown out all bids for pipe to equip new pumping station, and authorized director of service to readvertise. Reason for this action was that none of bidders fulfilled specifications.

Guthrie, Okla.—At special election town of Marshall voted to issue \$20,000 in bonds for waterworks system and \$5,000 for electric light plant.

Media, Pa.—Election has resulted in favor of issuing water works and electric light improvement bonds in sum of \$70,000.

Woonsocket, R. I.—Sum of \$7,200 has been appropriated for water works construction.

Ogden, Utah.—It is planned that immediate arrangements shall be made for the building of the concrete intake at the head of the 36-in. pipe line for the artesian wells water main extension.

Salt Lake City, Utah.—All bids submitted on \$300,000 segment of city water and sewer bonds which city desires to sell have been rejected by unanimous vote of City Commission in committee of the whole.

Salt Lake City, Utah.—New bids on \$300,000 segment of city water and sewer bonds which city desires to sell will be received and considered June 25, according to decision of city commission.

Wheeling, W. Va.—Plans are being prepared by C. E. Cooke, city engineer, for construction of 20,000,000-gal. water supply system from wells.

Tacoma, Wash.—Ordinance has been passed authorizing Commissioner of Light and Water to purchase and install a 30-inch hydraulically operated gate valve at the "J" St. standpipe; and appropriating sum of \$1,940.00, or so much as may be necessary therefor, from Water Fund.

CONTRACTS AWARDED.

Herrin, Ill.—The Pittsburg Filtration Co. of Pittsburg, Pa., has been awarded contract by City Council to construct filtration plant at city reservoir of Herrin, at contract price of \$18,107. The plant is to be ready for operation by October 1. System of filtration is known as mechanical gravity system. The Pittsburg firm won award over competitors from Kansas City, St. Louis and Chicago.

Garnett, Kans.—To Merkle-Hines Machine Co., Kansas City, Mo., at \$8,925, contract for new engine, boiler and generator for electric pump for city water works.

Atlantic Highlands, N. J.—Robert W. Smith Corporation, 30 Church St., New York, N. Y., at \$5,978, for laying water mains.

Newark, N. J.—To Marks, Lissberger & Co., Inc., of Long Island City, contract for supplying lead pipe and pig lead, amounting to about \$15,000 annually.

Newark, N. J.—For straight c. i. water pipe and special castings, for both low and high pressure system, by Bd. Street and Water Comrs., as follows: 1,206 tons 6 to 12-in. low pressure pipe, \$22.34 per ton, and 65 tons special castings at \$55, awarded to Standard Cast Iron & Fdry. Co., total cost, \$30,517. Next 2 lowest bids: U. S. Cast Iron Pipe & Fdry. Co., \$30,981; Warren Fdry. & Machine Co., \$30,993. 1,505 tons 16 to 24-in. low pressure pipe, \$21.84 per ton, 35 tons special castings, \$54.50, awarded to U. S. Cast Iron Pipe & Fdry. Co., total, \$34,777. Next 2 lowest bids: Standard Cast

Iron Pipe & Fdry. Co., \$35,333; Warren Fdry. & Machinery Co., \$35,724. 1,310 tons 36-in. c. i. water pipe at \$21.34 per ton, 50 tons special castings, \$55, to Standard Cast Iron Pipe & Fdry. Co., total, \$30,705. Next 2 lowest bids: U. S. Cast Iron Pipe & Fdry. Co., \$31,152; R. D. Wood Co., \$31,183. 851 tons 6 and 12-in. c. i. high pressure pipe, \$21.99 per ton, 50 tons special castings, to R. D. Wood & Co., total, \$21,713. U. S. Cast Iron Pipe & Fdry. Co., \$22,011; Warren Fdry. Machine Co., \$22,613.

Albion, N. Y.—Another contract has been awarded by village trustees for equipment of new municipal water works system. The Foos Engine Co., of Springfield, O., was awarded contract for installing at Lattin bridge pumping station two gas producers of 50 horse-power capacity each, two 35 horse-power gas engines, two Demming triplex pumps with a minimum capacity of not less than 350 gallons each, and to remove the old steam boilers and pumps from the present plant. Only remaining contract left to be awarded is that for construction of about 5 miles of water mains and it is expected that the award will soon be announced.

Albion, N. Y.—Board of Trustees has given out following contracts for improvements to new municipal water works system: Ludlow Manufacturing Co., of Troy, the hydrants, valves and valve boxes, \$1,399; New York Continental Jewel Co., filter plant and equipment, \$12,220; R. D. Wood Co., water pipe mains at \$23.65 per ton.

Cleveland, O.—For constructing superstructure of Division Ave. pumping station by city to F. W. Mark Constr. Co., at \$233,988.

Dayton, O.—Sleeves and valves for use in water department have been purchased from A. B. Smith of Atlas Cement Co., at his bid of \$663.95.

Philadelphia, Pa.—By Dept. Pub. Wks. for Contract 260, furnishing and laying c. i. water pipe at South Philadelphia, to Edwin H. Vare, 712 Lincoln Bldg., \$399,964. Other bids as follows: Snare & Triest Co., Pier 40 So. Wharves, \$406,855; (c) Degnon Contr. Co., 30 E. 42d St., New York, \$413,127; (d) Chas. P. Bower, Wayne & Roberts Aves., \$424,381; Keystone State Constr. Co., 704-709 Pennsylvania Bldg., \$438,645; Beaver Eng. & Contr. Co., 51 Chambers St., New York, \$443,916; American Paving & Constr. Co., 211 S. 9th St., \$450,531; Cunningham Paving & Constr. Co., 1345 Arch St., \$478,955; Peoples Bros., Inc., 237 Commercial Trust Bldg., \$577,250; M. & J. B. McHugh, 714 Commercial Trust Bldg., \$654,594. Unit prices of successful bidder: 55,000 cu. yds. earth excav., not more than 10 ft. deep, 85 cts.; 1,000 cu. yds. earth excav., more than 10 ft. deep, \$1.95; 1,500 cu. yds. rock excav., not more than 10 ft. deep, \$1.33; 500 cu. yds. rock excav., more than 10 ft. deep, \$1.95; 7,200 tons 48-36-30-in. c. i. hub and spigot pipe, \$28; 1,700 tons 24-in. and smaller c. i. hub and spigot pipe, \$28; 200 tons 48-36-30-in. c. i. specials, \$82.40; 50 tons 24-in. and smaller c. i. specials, \$88; 35,000 lbs. grey iron castings, 3 1/4 cts.; 10,000 lbs. wrought iron and steel fixtures, 10 cts.; 5,000 lbs. structural steel, 4 cts.; 1,500 cu. yds. brick masonry, \$6.50; 2,000 cu. yds. granite block paving, 40 cts.; 6,000 sq. yds. asphalt paving, \$1.40; 2,000 sq. yds. vitr. brick paving, 75 cts.; 1,200 sq. yds. wood block paving, \$1.60; 1,000 lin. ft. reset, curb, 20 cts.; 1,000 sq. ft. reset, flag stones, 6 1/2 cts.; 100 sq. yds. granolithic sidewalk paving, \$1.60; 100 sq. yds. brick sidewalk paving, 65 cts.; 10,000 lin. ft. terra cotta pipe sewers, 15 in. and under, 96 cts.; 3,000 ft. b. timber, 4 cts.; 2,000 lbs. lead pipe, 17 cts.

Ridgway, Pa.—To George I. Thompson & Co., Clearfield, at \$4,310, for enlarging filtration plant. Other bidders were: Horn & Devling, Galetton, \$4,446; R. B. Tayloer, Bellefonte, \$4,485; M. Aplegate & Son, Bradford, \$7,055; John T. Minns, DuBois, \$4,365; William Dickinson, Ridgway, \$5,916.

Woonsocket, R. I.—Contracts for surface water drains in So. Main St. and several other streets have been awarded to Brein & Bouvier.

Norfolk, Va.—One contract has been awarded by Board of Control to W. P. Oberndorffer & Son, for piston meters and fish traps for water department, as may be required by water department until Jan. 1, 1916. Price to be paid are: \$46 for 1 1/2 in.; \$66 for 2-in.; \$110 for 3-inch and \$215 for 4-inch meters. All meters must be of the latest improved pattern.